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and ESSENTIAL OIL REVIEW

COSMETICS · SOAPS · FLAVORS

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Editorial Comment

Restrictions Bow Out

In the September issue this column reported that Governmental regulations and restrictions were being lifted so rapidly that any evaluation at that time would have been of little use.

Well! There have been some changes made. War Food Orders 57, 87, 129, 136 and 137 (fats and oils), 76 (lanolin), 81 (oil of peppermint), 128 (animal oil) and 134 (glycerin inventories), have been dropped.

War Production Board Orders M-8 (cork), M-9 (copper) M-11 (zinc), M-11a (zinc oxide stock), M-19 (chlorine), M-27 (phenols), M-69 (distilled spirits), M-103 (dye stuff), M-150 (aromatic solvents), M-157 (chemical cotton pulp), M-239 (steatite talc), M-276 (bismuth), M-289 (charcoal), M-290 (container board), M-297 (coal tar), M-300 (chemicals —except schedules 14, 35, 43, 70, 71, 75, 79, 84, 96, 97, 100 and 108), M-332 (oils and protective coatings), M-340 (chemicals), M-351 (waxed paper), M-380 (moisture vaporproof barriers), and M-382 (protective coatings), have gone by the board.

War Production Board Orders L-20 (cellophane), L-120 (schedules 1 to 15, on paper), L-103-b (glass containers—only tin plate closures remain under restrictions), L-144 (laboratory equipment), L-197 (steel drums), L-232 (wooden shipping containers), L-239 (folding and set-up boxes), L-378 (paperboard), L-279 (paper shipping sacks), L-294 (displays), L-337 (fibre drums) and L-317 (fibre containers) are no more.

In fact, just about everything that has hindered this industry as far as material restrictions are concerned has been lifted. The only shortages are in fats and oils, (which have been helped materially through cutbacks in military orders), alcohol (and our production seems to be ample), tin plate, and sugar.

Revocations do not necessarily mean that orders for machinery and supplies can be filled overnight. But the "hunting license" stage seems to be pretty well past, and we can now enter the phase where volume can be stepped up to the limit.

PACK TO ATTRACT IN *Maryland* GLASS

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Desiderata

by MAISON G. DeNAVARRE

M. G. DeNavarre at work in his laboratory

ISOPROPYL PALMITATE

Until a few years ago, the only alcohol soluble fatty material in use was castor oil. It was not particularly desirable, but there was no way out of using it; there was nothing else to use. However, during the war years, from 1939 on, the methyl, ethyl, isopropyl and butyl esters of fatty acids came into use. Butyl stearate was one of the first to make its debut. The methyl and ethyl esters soon followed but they were a bit too "thin" to qualify as *oily* ingredients. Then came isopropyl palmitate, intermediate between the thin-non-oily fat derivatives and the heavy, greasy ones characterized by any of the well known oils.

Isopropyl palmitate is essentially a clear, colorless material, remaining clear at least to 40 deg. F, odorless, alcohol soluble, miscible with other fatty cosmetic ingredients. While its price at the moment is substantially higher than ordinary liquid fatty materials, it will undoubtedly come down in price once it goes into quantity production. It is surprising how much of it can be incorporated into a product without the manifestation of an oily or greasy feel. It has good fixative properties. Forms a fine base for bath oils for example. Can be used in toilet waters, for example, when it is desired to overcome the drying effect of colognes.

WATER SOLUBLE HARD WAX

The first of a series of ethylene oxide condensation products with itself, made its debut some seven years or so ago. It was a water soluble, soft, wax-like, buff colored material. Many uses were found for it in a host of industries. A soft, petrolatum like type became available, in water white and colored grades. A new one was recently added to the family. This one has an average molecular weight of 6000. It comes as a hard flaky material, water soluble but far less hygroscopic than the petrolatum like version having an average molecular weight of only 1500. Along with well known cosmetic ingredients, this new member is going to find a lot of cosmetic uses.

An interesting application for the material with petrolatum like consistency is in the development of a non-alcoholic, clear hair dressing for example. It can also be used as a plasticizer in gum wave sets.

CONGRATS TREASURY

Congratulations to the Treasury Department for its publication of a list of tax-free and taxable shampoos. It makes no difference who sired the idea. The Treasury Department cleared the air for manufacturer, retailer and consumer at one clip.

For throughout the country, no one knew whether their product was taxable or not, and as a result played safe by collecting tax and passing it along to the Collector of Internal Revenue. Competitors would claim their product was not taxable. Competitor accused competitor of sculduggery and so on. NOW, if your product is not on either taxable or tax free list, you can send the product in to the Collector of Internal Revenue at Washington, D. C. You will quickly find out where you stand.

PROPYLENE GLYCOL vs. GLYCERIN

If one is to ever know which is better for a particular job, propylene glycol or glycerin, then one must experiment with each product under identical conditions using materials as identical as possible. Many of us have been sure that the one material does not replace the other simply because of the behavior of products containing them.

USE OF HUMECTANTS

So, we have started a long series of experiments using the three commonly used humectants, commercial sorbitol syrup, propylene glycol and glycerin. Many have been the surprises resulting from this work, and it has just got underway. It had been mentioned before that water-in-oil emulsions made with propylene glycol, glycerin and sorbitol syrup respectively, formed at a different rate with a different stability, strongly favoring propylene glycol.

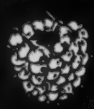
A series of vanishing creams was made with like amounts of each of the humectants. Those made with glycerin behaved in an entirely different manner than those made with sorbitol syrup and propylene glycol. Why the last two named materials behaved alike is impossible to say.

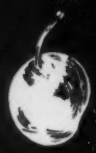
A series of hand lotions made with propylene glycol, sorbitol syrup and glycerin again showed entirely different results than had been expected. Some were liquid, some absolutely solid with others in between.

So, it is becoming strongly apparent to us that one cannot indiscriminately replace either of the humectants with the other without getting some unusual and sometimes undesirable properties. More work

IT'S HARD TO TELL THE DIFFERENCE...

IMITATION STRAWBERRY NO. 21

IMITATION RASPBERRY  NO. 56

IMITATION CHERRY  NO. 105

These skilfully blended Norda flavors embody the natural taste of freshly picked fruit, yet have the added advantage of concentrated strength ideal for stretching natural flavors. Any one of the three — Imitation Strawberry, Raspberry, or Cherry — merely by being used alone can completely replace your natural flavors. Excellent for hard and soft candies, gelatin desserts, etc.

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goes on, and it is hoped that some really worthwhile information will result. This information will be published for all to know.

BUBBLE NOVELTIES

Practically every dime store over the country has a display or/and demonstration dipping a wire form into a liquid and making bubbles by simply waving the wire loop through the air after dipping into the solution.

At first sight, you think to yourself that that is an easy thing to make. And then you start—and find it isn't so easy. Analysis shows the presence of 5 per cent or more of humectant with enough wetting agent to do the job. Testing a group of over one hundred materials, it was found that only one showed any potentialities. Nice going isn't it? Well anyway, you can make bubbles that are beautifully colored, float in the air for at least a city block in a strong wind too, and you can do it easy as falling off a log. You'd be surprised at the foaming agents that give scads of foam but no bubbles!

EMULSIFIED LIPSTICK

Several months ago this column mentioned an emulsified lipstick as being a good idea. At that time I had in mind only the standard emulsion of water and oil, with the water in the fatty phase. Everyone knows that there are other kinds of emulsions than those containing water, the common lipstick on the market today is oftentimes an emulsion of castor oil in some other fatty phase.

This approach to the problem is a little different because what is desired is a good emulsifier for castor oil rather than a coupling agent or solubilizer. A bit of research in this line might help the problem of sweating for example. It would also aid in making a stronger lipstick with better gloss. It is definitely worth a little work to prove—if nothing more—that the idea is silly.

ISOPROPYL ALCOHOL

During these years of war, it was often mentioned here that isopropyl alcohol was being used successfully in making toilet articles of one kind or other, with alcohol concentrations of 50 per cent or more. It was also mentioned that some types of perfume compounds worked better with isopropyl alcohol than others. The floral odors are not ones to blend with isopropyl alcohol. There is quite a clash of bouquets. But take the sweet oriental types or the aldehyde bouquets . . . you will find that it not only works but that isopropyl alcohol gives such odors a real zip.

Samples of such compounds as 70 per cent isopropyl alcohol kept at my laboratory for a year were truly beautiful when opened for use. A sample of emulsion containing the same compound fortified with 5 per cent isopropyl alcohol after one year was so delightfully fresh and novel that women smelling it were quite excited with the "new odor."

And while there is no data yet to establish the worth of one alcohol over another in the ease of formation of emulsions, it has been noticed off and on that the emulsions containing isopropyl alcohol did form a little more easily than when made without it. Here is another research opportunity. It is basic information that is required. The findings may be far reaching in their significance. So don't look at war materials as has-beens. There is a place for isopropyl alcohol—not as a substitute or replacement but as a material standing on its own merits.

FRUIT STRETCHER

In most soda fountain fruits, it is possible to stretch such scarce items as raspberries, strawberries and others that are fairly highly tinted, by using from 25 to 50 per cent of the total fruit of shredded raisins with appropriate adjustment of flavor with other natural ingredients.

ESSENTIAL OILS PRESERVATIVE

A substantial amount of European work appeared about the time the war started describing the self preserving properties of different drug and spice infusions.

Now, Webb and Tanner have just published a detailed report of their investigations of the preservative effect of whole and ground spices. Cinnamon was most inhibitive, clove next. All others including allspice, bay, mustard, pepper, ginger, paprika and nutmeg had little if any preservative action. One should consult the original article for some interesting revelations.

QUESTIONS AND ANSWERS

568. NDGA AND PROPYL GALLATE

Q: *I would like to learn where I can buy NDGA and propyl gallate, the percentage of each to use in vegetable oils. I would also like to have the chemical name for NDGA. Could Mr. deNavarre recommend a modern mixer for a liquid emulsion and a tank having a capacity of from 10 to 20 gallons. A stamped envelope is enclosed for your reply.*

R. M.—California

A: The amount of NDGA and propyl gallate used as preservatives varies substantially. Generally speaking, 0.1 per cent of either antioxidant plus 0.001 per cent of citric acid works quite satisfactorily. However, the suppliers who make these materials will give you further data on different fats and oils. Chemically NDGA is nor-dihydro-guararetic acid. The name of a suitable mixer and other sources of supply go under separate cover.

569. IRISH MOSS EXTRACTIVE

Q: *We are most interested in the article appearing on page 35 of the June issue of* The American Perfumer *entitled "Desserts & Puddings". Would it be possible to give us further details?*

F. L. W.—New Mexico

A: The material in question is a special type of Irish moss extractive. The resulting pudding has a very unique flavor and under separate cover, we are sending you the name of the supplier of this extractive.

Fresh and exhilarating as the flower itself—WARDIA—an entirely synthetic Rose character, is meeting the most exacting demands of discriminating perfumers. Used by itself or as a replacement for the natural Rose oil it is invaluable. A Chuit, Naef product, ample stocks are available in this country—$58.00 per pound—a trial ounce $3.75.

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Methods of Preparing Colloidal Sulfur

The preparation of colloidal sulfur from polysulfides and from lime sulfur is not difficult . . . Sulfur solutions are mostly used for dermatological purposes

by JOSÉ MACIAS-SARRIA, PH.G., B.S.

IN looking over the market we find many so-called colloidal sulfur preparations sold under elaborate trade names and at high prices. An analysis of one product disclosed the following: Total sulfur 6.4 per cent, sodium oxide 4.96 per cent, sodium thiosulfate 8.14 per cent, sodium polysulfide 6.48 per cent. Certain preparations for internal use contain sugar while the external ones are scented with various essential oils.

These products are not artificial mixtures in the strict sense, but they are very simple to prepare by any experienced pharmacist. One can readily recognize Vleminckx' solution in a slightly different form. Some, as the one analyzed above, use sodium hydroxide instead of lime. The U.S.P. ammonium polysulfide reagent belongs to this group, and hence we call all such preparations polysulfide solutions. There is a certain amount of variation between them, such as the preparation of the U.S.P. reagent in the cold. Vleminckx' solution utilizes the mixing of lime, sublimed sulfur and water and boiling the mixture together. In the sodium polysulfide solutions, sodium hydroxide solution is mixed with powdered sulfur and boiled until the polysulfide is formed.

PREPARATION FROM POLYSULFIDES

The polysulfide solutions naturally offer the easiest method in preparing colloidal sulfur. The polysulfides are so loosely bound that the addition of diluted hydrochloric acid to neutralize the alkali is more than enough to precipitate the sulfur in its colloidal form; the by-product, sodium chloride (in case of sodium polysulfide solutions) is harmless.

When a few drops of such solutions are taken internally, the hydrochloric acid in the stomach neutralizes the alkali and produces colloidal sulfur. Just how much hydrogen sulfide is given off is something to investigate, but it must be quite a small amount judging from the scarcity of reports on its toxicity. H. Greengard and J. R. Woolley give striking information on the internal absorption of sulfur. Powdered sulfur yields a poor absorbable quantity while colloidal sulfur is completely absorbed and in doses of 500 to 750 milligrams is entirely harmless.

PREPARATION FROM LIME SULFUR

Therefore, when by analysis we discover the true nature of these polysulfides solutions, we find a great deal of information in fungicides literature, since their work in isolating colloidal sulfur from these polysulfide solutions has been extensively studied and investigated. To follow the remainder of the process, I quote from one of the treatises on fungicides:

One gram of glue in 200 cc of water is mixed with 50 cc of fresh lime sulfur at a temperature of 35-40° C. Ten cc of nitric acid diluted in water (2-20) is slowly added until a pH of 4.2 is obtained. Let this solution stand several hours in an open vessel to remove the hydrogen sulfide. This results in a final dilution of 1-9 of lime sulfur containing approximately 1.8 per cent of sulfur (the fungicidal lime sulfur is weaker than the N.F. lime sulfur). The above solution remains stable for several months.

Probably the sulfur preparations most useful to soap and cosmetic manufacturers would be the polysulfide solutions, especially sodium polysulfide. With this solution we can precipitate colloidal sulfur by means of diluted hydrochloric acid. This produces sodium chloride, a harmless by-product, which has the property of being a strong ionic substance and therefore one of the best colloidal sulfur precipitants.

PURIFICATION

To remove the by-product we use dialysers. Dialysers are now being made of lucite and other plastic materials, since they do not stain as metal ones always have. Another method makes use of temperature since by cooling the solution down to 10° C, all the colloidal sulfur forms a

heavy precipitate, which may be easily separated. Perhaps the combination of both methods would prove most satisfactory. In the fungicidal preparations, glue has been used as a peptizer, because it covers or separates the sulfur particles which have a tendency to crystallize upon drying. The colloidal sulfur of an alkaline nature harmonizes better with alkaline or neutral cosmetic creams. They would also prove most useful to soap manufacturers and are at the same time the least expensive.

POLYSULFIDES SOLUTIONS

Some of the activators used for hair dyes seem to consist of polysulfide solutions mixed with sulfonated castor oil, with the addition of some wetting agent. A few drops of this activator is added to the dye solution, which has already been mixed with the hydrogen peroxide, at the moment of application. No doubt in metallic dyes such an activator would be appropriate but even some of the para-dyes are sold with this activator. The para-dyes activator may contain some additional sodium sulfite, which is said to suppress the irritating action of the dye upon the skin: the addition of the sulpho group is claimed to render the dye almost harmless.

PENTATHIONIC ACID TYPE

There are other methods of preparing colloidal sulfur, but all these methods give colloidal sulfur of the pentathionic acid type. In this case it is believed that sulfur is held in its colloidal form or in suspension by the presence of pentathionic acid. The most popular method to obtain these pentathionic acid types is the sodium thiosulfate method (also called "hypo-acid" method). From Weiser, I quote:

"Procedure: 500 gm of commercial sodium thiosulfate dissolved in 300 cc of water are added slowly (drop wise) to 700 gm of concentrated (commercial) sulfuric acid with efficient stirring. The temperature should be kept below 25° C, if a good yield of sulfur is expected. When all the sodium thiosulfate has been added, add 300 cc of water and heat the product to 80° C, then filter. To the filtrate add 400 cc of saturated salt solution and allow time for coagulation, filter the sulfur from the clear supernatant liquid and peptize in sufficient water to give a solution of 10-15 per cent strength.

"Re-coagulate by the addition of sufficient saturated salt solution. Remove the sulfur by filtration and peptize with water sufficient to give a solution of the desired strength."

In fungicidal treatises, we find slight commercial variations from this method with the names; Young method, Selmi process, Modified Tisdale method, etc.

Svedberg has done a great deal of research on this method and also on the method using hydrogen sulfide and sulfur dioxide in water. A simple equation would be as folllows: $2H_2S + SO_2 = 3S \downarrow + H_2O$ but a more complex reaction takes place.

Svedberg found this peculiarity: that when the sulfur dioxide solution was .9 normal the output of colloidal sulfur reached its maximum yield; above or below such concentration the yield went down. The pH of these preparations runs from an optimum 4.2 to 5.4; some of the fungicidal solutions reach as low as pH 1. These solutions being of an acid character cannot be incorporated in liquid cosmetic creams of an alkaline nature.

These sulfur solutions are mostly used for dermatological purposes. Their main value is derived from those sulfur particles of the ultramicroscope type (truly colloidal) which are the ones which are most resistant to precipitation by the sodium chloride. No doubt the majority of these particles are lost upon redissolving the precipitate.

Naturally, it would not pay cosmetic firms, which put only one or two creams containing very little colloidal sulfur on the market, to manufacture their own colloidal sulfur, and they would do far better by purchasing it from a reliable pharmaceutical or chemical firm. Some of these companies offer a very good grade of colloidal sulfur which one can test for: 1. smoothness; 2. appearance in the microscope; 3. readiness to disperse in water, and the passage of such dispersions through filter paper; 4. the vanishing effect of these creams when applied, and the resulting smell indicating the presence of sulfur.

REFERENCES

1. Sullivan, M. X., and Hess, W. C. J. Bone & Joint Surg. vol. 16, No. 1, p. 185. Jan., 1934.

2. F. C. Combes. The role of Sulfur in Dermat. Meeting N. Y. Med. Soc., Buffalo, N. Y. May 25, 1932.

3. H. Greengard and J. R. Woolley. Studies on Colloidal Sulfur-polysulfide mixture. J. Biol. Chem. 132:67. Jan., 1940.

4. Weiser Inorg. Colloid. Chem. Colloidal Symposium Vol. I.

5. Svedberg "Colloidal Chemistry," Wisconsin Features Chem. Catalog Co. N. Y., 1924. The formation of Colloids, J. A. Churchill-London (Publishers) 1921.

6. Oden, Sven Ztschr. J. Chem. v. Indust. d Kolloide 8:186-1911.

7. Tisdale, L. E. Colloidal Sulfur: Prep. and toxicity Ann. Mo. Bot. Gard. 12:318-418, 1925.

8. Young, H. C. & Williams, R. C. Pentathionic acid, the Fungicidal Factor of Sulfur. Science 67:19-1928.

Botanical Garden News

This year the New York Botanical Garden, situated in Bronx Park, New York, N. Y., completes a half century of public service rendered not only to the community in which it is located but to the entire nation.

Probably no group of industries maintains a closer relationship with the New York Botanical Garden than the manufacture of drugs, pharmaceuticals and chemicals. These industries are indebted to botanical research for assistance in the study of medicinal plants, essential oils, insecticides and disease-inhibiting moulds.

In May 1945, Dr. William Robbins, director of the Garden, and two of his associates, announced the discovery of six new antibodic substances. Their clinical value is not yet known.

In war, the New York Botanical Garden served by helping to supply trained personnel for the production of essential war products. It also helped to train scientists for service in the tropics, furnished seeds and plant materials for war purposes, aided in producing educational films for the Armed Forces and helped to initiate and develop the Victory Garden program on a national scale.

The war taught many lessons, among them, almost preeminent, the importance of scientific research. Continued awareness of this need must be made clear. Into this broad pattern, the Botanical Garden will fit prominently in the next fifty years of its augmented service to the nation and the world.

A Survey of Spanish Essential Oils

The chemical composition of thymol type oil . . . Oil of origanum is produced principally in Spain, in Palestine, Syria and on the island of Cyprus . . . The properties and composition of oil of origanum*

by DR. ERNEST GUENTHER

Chief Chemist, Fritzsche Brothers, Inc., New York, N. Y.

Copyright 1945 by E. G., N. Y.

Thyme Oil—Thymol Type

WHITE THYME OIL

Natural thyme oil as distilled in Spain or Morocco has usually a yellowish red, sometimes deep red, color caused by the action of phenols upon iron condensers in the field stills.

An almost colorless oil can be obtained by redistilling (rectifying) the red oil. The process is accompanied by a certain loss of oil and by a corresponding increase in the phenol content of the rectified or white thyme oil. Thus, the phenol content of genuine white thyme oils is usually slightly higher than that of red oils.

Upon prolonged storing, white thyme oil has a tendency to redden again, especially when stored in metal containers.

In past years (occasionally even today) white thyme oils were offered on the market with a phenol content as low as 20 per cent. This was brought about by the specifications of earlier editions of the U.S.P. which permitted a phenol content of 20 per cent as lower limit. Such oils, however, do not represent natural products; they are made by adding oil of turpentine, steam distilled pine oil, camphor oil fractions, or p-cymene to genuine white thyme oils which possess a high phenol content.

CHEMICAL COMPOSITION

The first investigation about the chemistry of thyme oil dates back to 1853 when Lallemand[8] identified thymol as main constituent of thyme oil. The results of later work, however, have remained somewhat confused for the reason that no clear distinction was made between thyme oil (*Thymus vulgaris* L. or *T. zygis* L.) and origanum oil (*Coridothymus capitatus* Rchb. f.—*Thymus capitatus* Hoffmg. et Lk.) and even other species, either oil being designated simply as "thyme oil." The most thorough investigation was undertaken by the Schimmel chemists[9] who examined a genuine Spanish thyme oil distilled from *Thymus vulgaris* L.

The presence of the following compounds has been established:

amyl alcohol — Identified by the Schimmel chemists in the lowest boiling fractions b. 130-132°; naphthylurethane m. 51-52°.

β, γ-hexenol — When benzoylated in pyridine solution, the small fraction b. 145-150° gave a benzoate which upon saponification yielded an alcohol possessing the characteristic odor of β, γ-hexenol b. 156°. Characterized as naphthylurethane m. 58-60° (not sharp).

Walbaum[10] had previously identified β, γ-hexenol as phenylacetic acid ester, in the last runs of Japanese mint oil.

a terpene (?) — This terpene possesses a carrot-like odor; its structure remains unknown.

1) b. 155°, d_{15} 0.8533, αD + 4° 50′, n_D^{20} 1.46201.

2) b. 155-156°, d_{15} 0.8537, αD +4° 35′, n_D^{20} 1.46231.

l-α-pinene (?) — The l rotatory terpene $C_{10}H_{16}$, b. 160-165° originally named thymene by Lallemand,[11] was shown to be actually l-α-pinene by the Schimmel chemists.[12] Its presence in thyme oil, however, is still doubtful; it seems to occur in the oil in such small quantities that considerable amounts of oil must be fractionated before the terpene can be identified.

β-pinene — Identified by the preparation of nopinic acid m. 126-127°. Only a small quantity is present in thyme oil.

Adida and Demigneux[13] reported that a French thyme oil (*Thymus vulgaris* L.) contained 7.5 per cent of l-rotatory pinene.

* Continued from the previous issue.

camphene — Conversion to isoborneol m. 208-210°, according to the Schimmel chemists.[14]

p-cymene — Very small quantities occur in the fraction b. 175-179°. Oxidation to hydroxyisopropylbenzoic acid m. 153-154°.

γ-terpinene — The main constituent of the nonphenolic portions. Present in the fraction b. 176-183°. Identified as dihydrochloride m. 51-52°. Oxidation with potassium permanganate and potassium hydroxide to the erythrol m. 236-237°.

α-Terpinene, according to the Schimmel chemists,[15] is not present in thyme oil.

These workers also established the presence of the following alcohols:

linalool — Characterized by the preparation of the phenylurethane m. 65°.

l-borneol — m. 204°. Oxidation to camphor.

terpinenol-4 — In the fraction b_{6-7} 86.5-91.5°; terpinene dihydrochloride m. 51-52°.

Efforts to prove the presence of α-terpineol in thyme oil remained unsuccessful.

geraniol — Small quantities occur in the fraction b_7 91.5-102°; characterized as diphenylurethane m. 82°; oxidation to citral.

thymol — Thyme oil contains about 50 per cent phenols which consist mainly of thymol. In old oils thymol occasionally separates in the form of crystals. The phenols can be isolated by treating the oil with aqueous potassium hydroxide or sodium hydroxide solutions; by acidifying, the phenols are regenerated.

carvacrol — The bulk of phenols, thus isolated, crystallizes as thymol. A small quantity remains liquid and consists of carvacrol and,

a phenol (?) — probably another phenol which, so far, has not yet been identified.

(A method of separating thymol and carvacrol has been patented by Chem. Fabrik Von Heyden A. G.[16]).

caryophyllene — Caryophyllene is present, according to the Schimmel chemists, in the high boiling fractions b_7 102-106° of thyme oil. Characterized by conversion into caryophyllene alcohol m. 94-95°.

a sesquiterpene (?)
a sesquiterpene alcohol (?) — Caryophyllene seems to be accompanied by another sesquiterpene and by small quantities of a sesquiterpene alcohol.

USE

Oil of thyme, a powerful germicidal, finds wide application as disinfectant and antiseptic of rather pleasant odor. It is used as such in many pharmaceuticals and oral preparations like gargles and mouth washes.

The oil is said to cause mental excitement; it serves as a diffusible stimulant in collapse. Dose 1 to 5 minims (0.06 to 0.30 cc.)

Oil of thyme is used also for the scenting of soaps.

On an increasing scale, oil of thyme serves for the flavoring of all kinds of food products, meats, sausages, sauces, and canned foods, in which it replaces the botanical as condiment.

8. *Compt. rend.* **37** (1853), 498. *Liebigs Ann.* **101** (1857), 119. *Ann. chim. phys.* III. **49** (1857), 148. *Liebigs Ann.* **102** (1857), 119.
9. *Ber. Schimmel & Co.* 1922, 71.
10. *J. prakt. Chem. II*, **96** (1918), 245.
11. *Compt. rend.* **37** (1853), 498. *Liebigs Ann.* **101** (1857), 119. *Ann. chim. phys.* III. **49** (1857), 148. *Liebigs Ann.* **102** (1857), 119.
12. *Ber. Schimmel & Co.* Oct. 1894, 57.
13. *Bull. sci. pharmacol.* **33** (1926), 65.
14. *Ber. Schimmel & Co.* Oct. 1894, 57.
15. *Ibid.*
16. *Chem. Zentr.* II (1928), 1718. D. R. Patent 462150, Jan. 24, 1926.

Oil of Origanum

Although in commerce frequently confused with or mislabeled as thyme oil, origanum oil is in reality an entirely different type, distilled from a different plant species and in different regions.

It has a different chemical composition, containing 63 to 74, usually 65 to 70 per cent of phenols which consist mainly of carvacrol (noncrystallizable phenol).

Oil of origanum is produced principally in Spain, in Palestine, Syria and on the island of Cyprus, lately also in Morocco. Oils of similar physical properties and chemical composition have also come from Asia Minor and were known in years past as Cretan, Trieste, Cyprus, Smyrna and Syrian origanum oils; but the botany of the plants from which some of these Eastern Mediterranean oils were produced, remains confused.

BOTANY

Spanish, Moroccan, Palestine and Syrian origanum oils are distilled from the following herb, *Thymus capitatus* (Lk.), which is now con-

Origanum distillation near Argos de la Frontera

sidered a separate genus, viz., *Coridothymus capitatus* Rchb.

RANGE AND HABITAT

The plant, in Spain colloquially called *tomillo Andaluz* or *tomillo carrasqueno*, grows wild and profusely in Andalusia, the southern part of Spain, especially in the provinces of Malaga, Cadiz, Huelva, Sevilla, and on the limits of Cordoba. It seems to prefer lower elevations and a more humid soil than thyme.

COLLECTION AND DISTILLATION

The plants are gathered from May to August.

Distillation is carried out in field stills similar to those used for spike lavender, except for the fact that the origanum stills are larger, 2 meters high and 1.60 to 1.80 meters wide. They hold about 800 to 1040 kilos of plant material. Distillation of one charge requires about nine hours, including 30 minutes for packing the still and 30 minutes for getting steam up. During the eight hours of actual distillation 240 to 300 liters of water distill over.

YIELD OF OIL

Depending upon climatic and seasonal conditions, ten arrobas (1 arroba = 11.5 kilos, or about 25 pounds) of plant material yield on the average one kilo of oil; in other words the yield of oil is about 0.87 per cent.

PHYSICO-CHEMICAL PROPERTIES

Origanum plants growing in the lowlands yield oils of higher phenol content than those growing at higher altitudes, a few miles distance often causing a considerable difference in this respect.

Origanum oils distilled under the author's supervision had the following properties:

Locality	Spec. Grav. at 15°
Chiclana de la Frontera (near Cadiz)	0.950
Portal (near Jerez de la Frontera)	0.952
Huelva	0.951
Huelva	0.949

The oils were too dark to permit determination of the optical rotation.

Genuine lots of own importation, when analyzed in the New York laboratories of Fritzsche Brothers, Inc., had properties which varied between the following limits:

Specific Gravity at 15°	0.937 to 0.955
Optical Rotation	Inactive to +1°0'
Refractive Index at 20°	1.5007 to 1.5080
Phenol Content	64.0 to 71.0%
Solubility	Soluble in 2.5 to 3 vol. and more of 70% alcohol, sometimes with slight turbidity.

According to the manner of distillation, pure Spanish origanum oils should contain a minimum of 63 per cent phenols.

ADULTERATION

Adulterated origanum oils have frequently been encountered in the trade. In fact, this practice has done such harm to origanum oil that in late years the demand for it diminished considerably.

It is easy to adulterate origanum oil by adding low-priced synthetic carvacrol and p-cymene. The author examined samples of so-called origanum oils consisting entirely of synthetic carvacrol and p-cymene. Routine chemical analysis is almost useless for detecting such sophistication, but the expert can recognize the presence of synthetic carvacrol by a slight "by-note" of creosote which becomes more noticeable as the oil evaporates on test paper.

TOTAL PRODUCTION

In normal years, Spain's total production of origanum oil used to fluctuate between ten and twenty tons. After the outbreak of civil war in 1936, however, it fell to very low figures. Since 1939 production has again increased, due primarily to a heavy demand on part of Germany during World War II. Production in 1945 will amount to about 10 tons of oil, most of which will be exported to the United States and to the United Kingdom.

Phenol Content	Solubility at 20°
71.0%	Soluble in 2.5 vol. of 70% alcohol and more.
71.5%	Soluble in 2.5 vol. of 70% alcohol and more.
69.0%	Soluble in 2.5 vol. of 70% alcohol.
67.0%	Soluble in 2.5 vol. of 70% alcohol.

OIL OF ORIGANUM WHITE

Rectifying the dark natural oil of origanum gives an oil of light yellow color. The loss of oil connected with rectification causes a slight increase in the phenol content of the light oil. When stored in metal containers for a long time, the white oil tends to darken again.

CHEMICAL COMPOSITION

The literature on the chemical composition of origanum oil (*Coridothymus capitatus* Rchb. f. *Thymus capitatus* Hoffmg. et Lk.) is somewhat vague and limited for the reason probably that, in the past, this oil has often been confused with thyme oil (*Thymus vulgaris*).

The presence of the following compounds has been reported by the Schimmel chemists,[1] by Palazzo and Lutri,[2] by Pellini and Morani,[3] by Puxeddu,[4] and by Blaque:[5]

amyl alcohol *α-pinene* *dipentene* *p-cymene* *bornyl acetate* *thymol*	About 6 per cent.
carvacrol	The main constituent; the oil contains from 65 to 70 per cent of phenols, mainly carvacrol. Contrary to thymol which crystallizes, carvacrol remains liquid at room temperature.
thymoquinone *a sesquiterpene* (?)	Presence probable.

In view of the importance which origanum oil has assumed in the essential oil trade, it seems desirable that a more detailed study be undertaken on an oil of botanically well defined origin.

USE

Origanum oil, red and white, is a powerful disinfectant. Therefore, it finds application in all kinds of pharmaceutical and semi-pharmaceutical, especially oral, preparations.

Origanum oil is used widely in the scenting of soaps and to a limited extent in the flavoring of food products such as meats, sausages, sauces, canned goods, etc.

1. *Ber. Schimmel & Co.*, 1889, 56.
2. *Ann. chim. applicata* 14 (1924), 109.
3. *Ibid.*, 13 (1913), 97.
4. *Ibid.*, 15 (1925), 162, 170.
5. *Perfumery Essential Oil Record* 14 (1923), 239.

(Editor's note: conclusion of article)

Short Adages

by R. O'MATTICK

We expect the Christmas season to be a very good one even though a great many ladies will not be buying dozens of cologne-for-men sets to send to their gentlemen friends overseas. But many of these gentlemen friends will be right here in the U.S.A. buying a great many cologne-for-ladies sets and lipsticks and face-powder, not to mention perfumes, sachets and toilet waters for their lady friends so that the buying will more than equalize the not-buying. These lipsticks and perfumes and powders, et cetera, will be bought in place of the so-called hand carved ear-rings that G.I. Joe bought while he was in Egypt, or the dozens of other trinkets sent here from China, Persia, Wake Island, England, France, Formosa and a thousand other parts of the world.

Yes, we expect the Christmas season to be a very good one. And who knows—just before Christmas—the 20 per cent Federal tax on cosmetics may become a relic of war days. That would help buying too. Just imagine getting a one dollar box of face powder for one dollar instead of for one dollar and twenty cents.

* * *

We have made every effort possible to get news about new events and new things in the world of perfumes and cosmetics, now that the war is over! But it is too early, it seems, for anything exciting to have taken place. The perfumes and cosmetics, like radios and television and a thousand other things of the post-war world will come but not immediately. It is all a matter of slow evolution so that if your supplier can take care of you, meanwhile, on those lipstick cases he has been providing in the past or that perfume oil compound or the oblong bottles take them. We have an idea that they must be used up before the new things come.

* * *

One new thing we did hear about! A new line is coming out which isn't a *men's line*. And it doesn't claim to revolutionize the use of cosmetics. Just about a half dozen of the usual items, smartly packaged, well-made, with attractive odors, reasonably priced. We have an idea the products will sell with some good advertising behind them because they have merit and appeal.

* * *

June Ippère is awaiting with great impatience the final outcome on hormone creams and their value. She wants to know whether the one she has been using has done her face any good or not.

* * *

We hope that in the post-war world perfumers will not merely turn back to the flower oils of France and settle all their perfume problems by using these as they did in pre-war days. We trust that there will be *new* odors which are really *new* and wonderful and different. Was it not after World War I that the aldehyde odors first appeared and how novel they were? Gentlemen of the smelling-blotter fraternity—what have you to offer?

* * *

We took up this matter with Dr. Rowmateral. When we entered his laboratory he was just in the process of tearing up what looked like a hundred sheets of paper, into tiny pieces. When he is tearing up papers that way we know it is an excellent sign because he never tears up papers until he is through with a whole series of perfume composition experiments. Incidentally Dr. Rowmateral never trusts anyone to tear up the papers for him. Not only must they be torn into such tiny bits that they can never possibly be pieced together, but no one can even get hold of one of the pieces and read a half a word on it.

"You see," Dr. Rowmateral explained, "someone might see part of a word which may give him a clue to my post-war perfume."

"But since it is on a formula you have discarded, of what good is it?" I asked.

"Ha, the formulas I discard and throw away—even parts of them—may furnish a perfume for one of the big houses on which they could make a million dollars!"

* * *

Dr. Rowmateral has his virtues but modesty is not one of them!

* * *

We have never known a modest perfumer. The good ones know that they are good and those who aren't so good, either don't know it or won't admit it, so why should they be modest? For that matter, we have never known a modest salesman, production man, advertising man, or any other man in this business who is modest. But most of them for all their lack of modesty, are a fine lot and we wish them long life, prosperity and a very good Christmas Season.

* * *

Time must elapse before everything loosens up, but the time will soon be here. Meanwhile, we are happy that the War is over and hope that the Problems of Peace will be solved with the same energy and united effort that attained for us the goal of Victory.

"Miss Kelly, that is not the way the cosmetic industry distributes its throw-aways!"

Cosmetic Trends in the Middle West

Stores are doing intensive training to create new selling ideas . . . Toiletries for youth prove to be a growing business . . . Cooler weather demands a change in perfumes and colognes

by JEAN MOWAT

HOLIDAY trends in cosmetics are now pretty well set. Little change in departmental layout will be made in middle western stores until after the New Year, although many departments do plan more efficient selling arrangements. Mirrors, fluorescent lights and new packages are expected to make departments take on an air of post-war vitality.

TRAINING COURSE IN SELLING

Department store buyers have long prided themselves on the way their salespeople could build a sale of one item into several and please both consumer and seller. Today these stores will be given a break for chain drug outlets are now doing intensive training to create new ideas in the sale of treatment lines. Walgreen's, with its several hundred stores, is the first of the group to make a detailed survey, and plan a Chicago school for the trial, and later extend it to all cities. The training course will be conducted by demonstrators from the firms with which this chain does business. The course will extend close to the holiday heavy selling season and is expected to produce a volume of sale that has never been touched by this chain.

WHAT ABOUT YOUTH?

Every buyer of cosmetics with youngsters in the home will remember how they try out everything on the cosmetic shelf. Perfumes are spilled; colognes upset; powder spilled all over the floor; cake powder broken into bits; nail enamel put every place but on the nail; and cream smeared over the furniture. Psychiatrists assert it is not merely deviltry—too often the parental charge—but it is strictly a research idea. The youngster wants to know how it all works and what happens. Today that same youngster is still playing about that shelf but with only a few ideas designed for that use—boy or girl. Both are engaged in testing the products on the parental shelves.

During the tremendous drive on back-to-school themes in the middle western stores only one store in Chicago mentioned a cosmetic for youth. Mandel Brothers suggested nail polish, creme, etc., which would add to study pleasure when used on the hands holding the book.

Several leading stores in this area and those along the Mississippi have ignored this growing class of business. This is the future group of consumers. So far little is being done about it in the larger stores. A leading store, internationally known, said they really carried nothing for the younger set and as the present sales were highly substantial probably would make no change. In fact, the buyer of this store said the sales on cake-powder were especially designed for youth and for one cake sold of this a 100 powder sales were made, possibly more, he indicated.

Several years ago Mandel Brothers, Chicago, made a survey of the people buying in the store and found that well over half were in the 50s and 60s. Youth was virtually absent. Mandel's made sweeping changes and even its buying policy was altered and it has now become the store for youth. The line of teen-age cosmetics recently placed in the Junior department has moved well. Marshall Field & Co. has increased its space in junior cosmetics, so other stores may also add similar sections. Carson Pirie Scott & Co. has for many years carried a select stock for the school girls and reports generally fair acceptance. Advertising by other stores has been done on these lines and Carson's has benefited.

Small suburban stores, located in neighborhood centers, are stressing toiletries for youth and finding it a profitable business. Youths work behind the counter after school hours and the managements have been clever enough to ask them for suggestions.

WHAT ABOUT DEMONSTRATORS?

Several stores in this area are finding that demonstrators are most efficient when presented in the classroom, rather than when working behind the counter. They are sufficiently high powered to convince the customer that this is the "one and only" but the repeat sales are not there. Regular clerks, acquainted with many brands, are proving to be more efficient. In many instances they know the customer and can advise with more assurance.

The Fair, Chicago, has discontinued the use of demonstrators in presenting either perfumes or colognes. The all-over sale by its own staff has been so satisfactory that the plan will be followed for the holidays. The demonstrators do carry on classes for the salespeople, which is considered a highly important factor in developing the ability of the store's own staff to sell more intelligently.

Men's toiletries are being given

more push by stores as a whole than ever in the history of the business. John Taylor of Kansas City suggests these items as ideal for the overseas Christmas box. Marshall Field & Co. used more than a quarter page to tell of its new fall line. About the same space was used by Maurice L. Rothschild & Co., in its St. Paul store to tell of these items for men. The Hub, Chicago, has added another counter to handle the business at this store.

PERFUME FROM CUBA

Perfume from Cuba is the latest addition to the line at Chas. A. Stevens & Co., and its fragrance is creating much interest. French perfumes, both at this store and others, are not considered important for another year at least, and some buyers frankly announce that little competition will be offered before Christmas of 1947.

Nationally known brands have been given widespread advertising. The Golden Rule, St. Paul, used a half page to present a well known line and included lipstick, make-up base, rouge and face powder. The ad was distinctive. It was a pumpkin-yellow background with figures and packages in black and white.

Treatment lines have been given special attention by such stores as Famous-Barr, Sonnefeld's, Garland's and Stix, Baer & Fuller, all of St. Louis. At Husch Bros., St. Paul, stress on quality products was made. Carson's, Mandel's, Stevens and The Fair, Chicago, report treatment lines to be so steady in sale that special prices during last month upped sales only slightly. This was due to the extensive regular display and advertising done on the lines in previous months. Cold weather has, of course, been a selling assistant.

COSMETIC BAR INSTALLED

Perfume bars have become common but The Fair, Chicago, has a "Match Bar." Here lip stick, nail polish and rouge are featured with special make-up mirrors so a woman may judge the exact shade perfect for her complexion. There has been a boom in business since this was installed. Carson Pirie Scott & Co. used a display in every one of its style windows when a new nationally advertised brand was placed in the department. This, connected with advertising and smart counters in the department, made it really seem like a romantic presentation.

Nail creme is a featured fall item at Kilpatrick's in Omaha. Deodorants steadily increase in presentation in all major cities. Store advertising and display is used in Detroit and Duluth daily papers, and women's pages in Indianapolis and Minneapolis stress national ads to promote their sales. The same general plan is followed for hair preparations. Buyers report that it is almost impossible to maintain stocks in creme shampoos and virtually every store of any importance carries such large stocks that it would seem as if both men and women were conscious of smarter grooming. Sears and Ward have both used consumer newspaper ads and often full pages to put over these two products.

PERFUMES AND THE WEATHER

Cooler weather throughout this entire section has already made its impression on perfume and cologne counters, for consumers want a sophisticated scent to go with the new fall clothes. Many stores have used the new perfume and cologne names to stress smartness in grooming. In fact, any smartly named scent can be assured of a quick move off the counter—its resale depends upon the quality of the contents.

What that actual quality-in-scent amounts to is a factor yet to be determined—so it seems. Women demand a finer fragrance and one that will last. Men, on the other hand, will buy a smart package, a good looking bottle and have it wrapped as a gift. From now on buyers are prepared to handle a good deal of return business. While department sales women try to ascertain the type of woman for whom the scent is being purchased, the girls in drug stores do not have time for this. And complaints of women coming in with most expensive packages to exchange for the type of cologne or perfume they really favor is common holiday talk in drug chains.

Cream colognes, supposedly ousted by the return of those with an alcoholic base, still insist upon having a place, for these are request purchases. For cold weather, more and more of these will be sold, assert women buyers. The men do not agree with this opinion.

"When will the tax be off" is a query heard many times a day. For the moment fears of this removal have ceased and sales are being made on better quality merchandise than would have been expected five years ago.

THE FUTURE OUTLOOK

Cold weather will add materially to volume sales in all stores. Hand lotions are even now superseding leg lotions and cake-powder for the collegians. Hand lotion is proving to be the biggest thing this crowd has accepted. By the way, reports indicate they still "eat" lipstick and collecting containers is a hobby for many.

A banner year is expected by all cosmetic sections. Because the average store sold a higher grade brand of merchandise during the war period, it is now reaping that harvest. Instead of stocking inexpensive merchandise, which with a tax becomes too high priced, stores are holding to their quality treatment lines which proved successful through resales, and to the top brands in colognes and perfumes. Some few manufacturers have recalled "duration" packages for the better type they can now offer. Many others are shipping in metal caps to take the place of the plastic ones which broke so often.

NEW CONSUMERS

The closing of war plants has released into all middle western cities a flood of new customers. These are men and women who were too busy, or too tired, to do more than essential shopping during the heavy working days. Today, free, they are shopping in stores which are new to them. They are spending freely for the best the departments have to offer. Perfumes, fine soaps, deodorants and entire ensembled treatment lines are selling.

Part of this interest is undoubtedly due to the smart advertising of the stores and the dramatic presentation of new color names for all types of products. Also, the fact that a pure red lipstick has returned to favor in a half dozen leading lines has made many friends among these new consumers.

Mrs. Crystal Persons King, formerly in the perfume section at Carson's, Chicago, has been made assistant to Miss Gibson in this department at Peacock's.

Characters Portrayed in Perfume Bottles

Hand blown character bottles once used to hold perfume are now collector items . . . The reintroduction of this idea might develop into a completely new and unusual packaging trend

by CLARENCE T. HUBBARD

CHARACTER bottles were quite the rage from 1860 to 1880. Some go as far back as 1840, others as late as 1944. Unless there is a revival, the trend is on the wane.

The craftsmen who cut the moulds essential for the creation of these fascinating perfume and cologne bottles were skillful and ingenious. And their imaginations seemed to be unlimited. Moreover, the glass blowers were then still in their prime.

The old glass from which these bottles were composed had a "feel" not existent in present day glass as fine as it is. The machine age has prevented the pebbly appearance of the older bottles, the air bubbles, sand holes and other distortions, now eagerly respected when found by collectors.

WHAT ARE CHARACTER BOTTLES?

But what do we mean by character bottles? Perhaps a better name would be figure bottles. They are bottles which are in the *shapes* of things—animals, objects, human beings, fruit, trees, flowers—almost anything.

For example, Mrs. Avery Robinson, president of Mary Chess, Inc., possesses a cologne bottle shaped as a circus horse with his feet in the air and a cockade on his head for a stopper. Mr. Norman Nelson of Fort Worth has one shaped as a female acrobat, standing on her head, the feet being the stopper. I have a cologne bottle shaped as an exact replica of the Eiffel Tower.

Among the smaller perfume bottles, merely to illustrate the endless characters portrayed, I have one in dark red amber shaped as a turtle, the head of the turtle screws off by means of a turned wooden stopper. Another, strangely enough, is a perfect imitation of a cigar—even the veins in the wrapper leaf clearly show. A cork served as the stopper—and faintly the perfume can still be discerned. Duck and geese bottles were common. Some real early slipper bottles were made by the famous Sandwich Glass Factory on Cape Cod.

These perfume bottles were cast as railroad lanterns, as cucumbers, warts and all, as bunches of grapes, candles, grandfather's clocks, violins, and any number as human hands, some just resting, others clasping objects and there is Elizabeth Corday's "Hand with the Dagger" bottle. A new graceful canary yellow "hand" has just appeared on the West Coast. There are so many varieties of hands in bottle form that some people specialize in such collections.

From the London Jubilee celebration I have a "finger ring" perfume bottle, the size of a ring, in cut glass, that fits over the finger and holds perfume. Moses in the Bullrushes, as it is called, is a novelty perfume bottle shaped as a reed basket in which lies a baby, one end of the bottle coming to a neck. Cupid and Cornucopia is a bit of character bottle art that would please anybody—the Cornucopia upright supported by Cupid. A rare one is the bird bottle about the size of a robin, the neck of the bottle in the tail. A cute number is a small two-inch bottle formed as a woman's head and shoulders, adorned in a Gay Ninety shirtwaist.

Among the larger sized cologne characters of the days gone by is an artistic treat in a bottle shaped like a tree trunk with a bird's nest on top and three little children reaching for it. There are several Bunker Hill monuments in character colognes and a few "flowers" and lighthouses unidentified.

The Girl with the Dotted Dress is an old cologne bottle, as is the Fox Sitting on a Log Reading a Book. Then there is the Apple Lady, and innumerable soldiers. I am especially fond of my Hessian soldier bottle. He is four inches high, wearing an immense beaver hat, possesses a full figure, and has a group of cannon balls stacked between his short legs. Then the Shriner, a small two-inch high bottle, whose stopper is a red fez with a tassel. Then there are bottles for perfumes shaped in the figures of cannons, barrels, banjos, kangaroos, grinning cats, black cats, poodles and small baskets.

TYPES OF SCENT BOTTLES

The early scent or muff perfumes—their real title was "smelling bottles"—also included some characters, especially the tiny sea horses. Some of these were genuine Steigels, others valuable South Jersey. These bottles, as most perfumers know, were used coyly by the ladies of the 19th Century to combat unpleasant odors. The "sea horses" and other shaped scent bottles could be "palmed" so to speak, or carried in the muff. They didn't always contain perfume—sometimes orange peels were placed therein, other times spirits of ammonia. The genuine early scent bottles were beautiful. The sea horses were exquisite, the tiny fins moulded in perfection. In the way of colors they were produced in cobalt blue, peacock green, in amethyst, pale

puce, sapphire and violet. Many were striped, some ribbed, or bearing tooled rigaree, the stripings were in milk white and other colors on free glass.

The first scent bottles were free blown, then blown in mould. Christmas has inspired many ingenious containers—one 15 inches high, a star for a stopper; the bottle shaped as a decorated Christmas tree. Filled with green tinted cologne it is beautiful. Then there is another, in the form of a white sphere bearing small green Christmas trees with tiny red flame points. There are several Santa Clauses.

BOTTLE RESEMBLES OYSTER

The originators of character bottles for perfumes resorted to many forms which often required making the neck of the bottle on the level, or the side, which would hardly be accepted today among practical minds. But in the last century they actually cast bottles to resemble oysters, potatoes, apples, pistols, even locomotives! There is a rare piece in the form of a woman riding a velocipede, and a man riding a high wheel bicycle, 12 inches high. Any reader aware of one of these can do well to communicate with the author. Seated rabbits were common, also powder horns and elephants—I have a tiny La Lique glass frosted elephant, an imported perfume container. There were opaline bottles shaped as fountains, cobalt blues showing a figure under a classical arch, a small bottle shaped as an Indian, very rare. One was recently located in Oklahoma. An aquamarine bottle shaped as a sailing vessel and another as a Roman vase.

Character bottles were made in an infinite number of shapes.

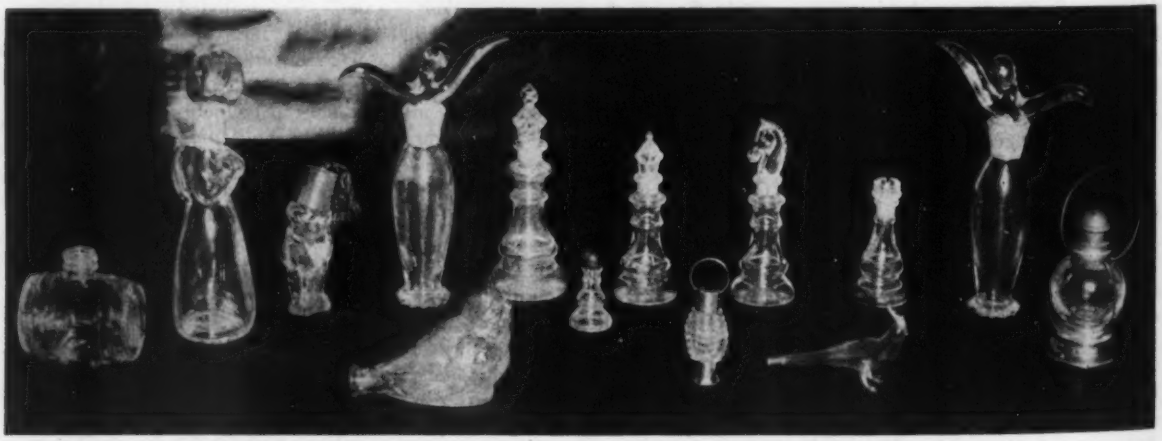
The Boston and Sandwich glass factory also made scent bottles and are known for their "acorns" with threaded necks to which was fastened a comical screw cap.

MARY CHESS EXHIBIT

The Mary Chess perfume company has an exhibit of its old scent bottles at 381 Park Ave., New York, N. Y. In fact. its present bottles are "characters" shaped as Chessmen. Helena Rubinstein has three modern "characters"—an angel in modernistic motif, and two ballerina ladies.

Another present-day perfume, namely, "Yester Year," is contained in a small three-inch bottle in the form of a girl attired in crinoline.

A post-war possibility is a revival of the "character bottle" fad. Nearly all perfume glass containers are attractive, many being genuine creations of art in design as well as in glassblowing. Perfume bottles are not quickly thrown away, because of their novelty and genuine beauty.



This collection includes the Mary Chess chessmen and Helena Rubinstein's ballerinas and angel. In the foreground are bird bottles and Early American and Czecho-Slovakian lanterns.

When in Figure Form, this desire for ownership increases. And then there is the sales enhancement found in the human urge to complete "sets" of these bottles.

Even the cheaper perfumes, sold in the chain stores, are packaged as clocks and other objects, but the figure is produced by plastics rather than by the bottle. Collectors will always favor the creations of glass which possesses enduring as well as eye-pleasing qualities.

Retail perfumers will find customer response to exhibits of old time character bottles. Occasionally these can be "borrowed" for display. However, it is possible for many to start a little collection of their own. These old character perfumes can be picked up in antique stores—there are usually always a few at the antique shows—in private homes and at sales of collections, and often at auctions. The bottles always increase in value and, therefore, are a good investment.

There are French colognes as well as American—often marked "depose"—and Italian, Belgium and English creations. My two lamp posts in metal but with bottles for the lamps came from Antwerp. These have to be searched out with patience.

UNUSUAL BOTTLE COLLECTIONS

There are many collectors, hobbyists in America, who collect perfume bottles of any kind. Mrs. Grace Pease of Los Angeles possesses a collection of novelty perfumes, including a set of pearls, each pearl a separate bottle. She has often displayed her exhibit. But she admits her "characters" are the most fascinating, especially the Penguin.

Of course character bottles are not confined to perfumes and colognes—there are figure bottles in the shapes of famous people as well as objects which were used as liquor containers, bitters bottles, lotion containers, vinegar and spring water containers. Some of these have been refilled and used for perfumes. But for sheer beauty and creative imagination in miniature, the character perfume leads.

Closely akin to the perfume trade is the bath salt industry, and Valentine's has given bottle connoisseurs a delight with their Buddha bottle now actually traded in among "anteekers" and collectors. My own measures 7½ inches high, and 4 inches at the base. The cap, or headdress, is of red amber, cut in facet style and adds to the novelty in the refractions of the light depending where it is placed. The bottle is in replica of a seated Buddha and a tag tied on with a silken cord emphasizes that the bottle is an authentic reproduction of the famous Buddha at the Kamakura Shrine and suggests that the bottle when emptied of the lilac bath salts would serve as a flower vase, a door stopper or book end.

NEW PACKAGING POSSIBILITY

In the way of originality for perfume manufacturers who might be interested in considering "perfume characters," much could be done by moulding bottles in the form of musical instruments, an almost virgin field.

There have been and are violin and banjo bottles but a 2 or 3-inch bottle shaped as a clarinet would serve appropriately for a perfume container. The belled out bottom of the clarinet could serve as a base. Music and fragrance are synonymous. A coiled French horn may have the same possibilities as the "sea horse" bottle—the curling design and the applied ribbing possibilities.

All brass and wood musical instruments have the reproduction possibilities as fitting perfume bottles as they can give to the bottles a standing position.

To my knowledge no perfume bottles have ever been reproduced in pieces to represent animal bands. You will discover small sets of cast animals in colored chromatics, in plaster and other substances, often colored such as cats, each playing a band instrument. In bottles they would be even more attractive and have the sales urge for purchasers to acquire full sets.

Ballet ladies have been perfume bottle characterized, but not the professional feminine skater. Herein are delightful bottling potentialities. Soldiers have been monumented in bottles, but not our feminine contingents, the WAC and the WAVE.

The equestrienne, the airplane stewardess, the flower garden farmerette—all of these are good subjects. So are the objects such as harps, hour-glasses, sea shells, old-fashioned hitching posts, knights in armor.

Amazing Prices for Bottles

Scent bottles worth £6000 changed hands in London recently at the sale at Christie's, of the 140 scent bottles in old Chelsea ware owned by the late R. W. M. Walker, London distiller who died recently at the age of 87. This very wealthy and retiring gentleman spent his life collecting pottery, porcelain, glass and silver. His collection, scattered at the time of his death in museums, banks and other secret and private places, was seen by Queen Mary on several occasions and was always available, when he wished, in photograph albums kept at his home.

These scent bottles form only a small part of this wonderful collection, yet are, in themselves, a unique collection of all shapes and sizes, in porcelain figures, each a gem of its type. Top price went for one, a porcelain model figure of a Chinese woman, at £183.10/—while two others, a monk reading a book and a fish caught in a net, fetched £178.10/— each.

The collection is believed to be the most complete of scent containers of the period, or perhaps of any type; unfortunately it is scattered now and ceases to exist as a unit.

Philippine Bottle Shortage

The following is from a letter recently received at the main office of the Owens-Illinois Glass Co., in Toledo, Ohio, from Lt. Edward Morse, U.S.N.R., a former member of the Sales Department. In writing of his experiences in the Philippines he says:

"My first reaction after seeing the sights and finding the nearest officers' club, was to look for the nearest bottle buyer.

"There are some Jap bottles in use, but the natives are very reluctant to admit they have them. I can understand their reluctance in this matter, although as far as I can see anything shaped like a bottle with a hole in it should be used here, no matter who made it. I picked up a sample of these Jap bottles and also a Chinese bottle of about one-half ounce capacity filled with face powder. They tell me one is supposed to mix water with the powder before using it. Just what result this gives I do not know, but I have my own ideas."

Packaging PORTFOLIO

DANA

DANA: Dana has added 20 Carats to its line of perfumes and colognes. The one ounce bottle of perfume is packaged in a simple, jewel-like box of white velvet lined in white satin. The bottles of 20 Carats perfume and cologne have gold labels and stoppers. Continuing the gold theme, flecks of gold are suspended in the liquid, giving it allure for the eye that equals the allure for the nose.

LYSANDA: Apollo, a new line of men's toiletries keynoted by a handsomely sculptured bronze head of Apollo, is being marketed by Lysanda. This notable style motif distinguishes all the products in the line and is accentuated by the gleaming bronze finish of the shaving bowl and bottle caps. Outer packages are masculine in their simplicity and combine deep brown with bronze accents. The complete Apollo line includes gentlemen's cologne, after shave lotion, hair dress and deodorant.

LYSANDA

ALI BABA: A brand new line of cosmetics and toiletries for little debs, Debuette, has been launched by Ali Baba. Pictured is the Debuette De Luxe Set, containing four ounce bottles of toilet water, shampoo, bubble bath, hand and body lotion, and dusting powder and mitt. The Debuette sets are packed in five color boxes bearing the adorable Debuette girl.

ALI BABA

DAGGETT & RAMSDELL

MIDDLEBROOKE LANCASTER

JUDY 'N JILL: The packaging of the Judy 'n Jill lipsticks is as different as their new colors, Date Bait, Cheer Leader, Siren, and After Five. The case is shiny white plastic with Judy 'n Jill heads painted in green.

JUDY 'N JILL

HERB FARM SHOP: The Night Scented Stock toilet water is attractively presented in a simple bottle by the Herb Farm Shop. A touch of cool blue is added to the label and bow.

HERB FARM SHOP

RICHARD HUDNUT

RICHARD HUDNUT: The new Yanky Clover Talc Mitten is designed by Enid Edson of Richard Hudnut. Unused, the mitten can be hung by the ribbon bow at the cuff. Its lining is extra-heavy and prevents leakage.

DAGGETT & RAMSDELL: Five Mountain Heather products are attractively arranged by Daggett & Ramsdell in a beautiful pink and blue gift box with a white satin lining.

MIDDLEBROOKE LANCASTER: The Lord Middlebrooke line of men's toiletries has been richly packaged by Middlebrooke Lancaster. The set pictured is presented in masculine, wood grain boxes and contains eau de cologne, creme shampoo and hair dress.

HELENA RUBINSTEIN: Let Your Eyes Speak is the new ensemble of Helena Rubinstein's eye preparations. The mascara, eye cream and eye brush are presented in a round, blue acetate box, topped with a saucy harlequin mask of vivid pink satin edged with black lace and tied with black ribbon.

HELENA RUBINSTEIN

Technical Abstracts from Scientific Literature

These brief abstracts listed provide a convenient key to current scientific literature of the world on perfumes, cosmetics, soaps, dentifrices and other preparations

White Potato Starches. P. E. Meiss, R. H. Treadway, and Lee T. Smith. *Ind. & Eng. Chem.*, **36**, *159, 1944.* Conditions of paste formation required for making reproducible consistency measurements on domestic white potato starches are discussed. Several factors influencing the consistency of the paste, such as method of drying starch and the pressure of water-soluble substances, have been studied. Consistency data are interpreted to yield information regarding the extent of degradation and/or the amount of soluble material present in starch samples. Twenty-four samples of potato starch produced by factories in the United States during the 1941-2 season have been examined by various chemical and physical tests. The consistency and particle-size measurements are discussed: the particle-size distribution of western potato starches is found to be different from that of Maine starches, but there is no relation between particle-size distribution and method of manufacture. Some conclusions are drawn regarding the influences of manufacturing methods and the water used in manufacture on the quality of starch.

Incompatibilities in Prescriptions. VI. Hydrolysis of Zinc Salts by William J. Husa and Jack K. Dale. Many of the incompatibilities of zinc salts are caused by the slight acidity of aqueous solutions. Published data on the pH of solutions of zinc salts are incomplete and contradictory. Hence the present study was carried out to clear up some of the discrepancies and obtain more complete data. Using the glass electrode, pH determinations were made on M/1000, M/100 and M/10 solutions of zinc salts including the acetate, bromide, chloride, iodide, nitrate and sulfate. It was found that heating for short periods raises the pH, but heating for longer periods lowers the pH. Experiments were also conducted to determine the effect of recrystallization on pH of the salt. Other points studied were variation in grade, effect of storage and comparison of the products of different manufacturers. (From the *American Pharmaceutical Association Convention Scientific Paper No. 5.*)

Foam-Current Methods of Measuring. S. Ross. *Ind. Eng. Chem., Anal. Ed.*, **15**, *329, 1943.* The chief methods, static and dynamic, currently employed to measure foaminess of liquids have been examined to ascertain the factors involved, since each measures a somewhat different complex of properties, such as drainage, apart from mere collapse or coalescence of bubbles. For a film of a given stability the average life of a bubble is greater the smaller the bubble, increasing at least in inverse proportion to the square of the diameter of the bubble. Methods have been suggested for examining the stability of foams with a minimum of complications through other factors. Sketches are given describing apparatus used in methods. (Through *J. Amer. Pharm. Assoc.*, **33**, *130, 1944.*)

An Improved Laboratory Polariscope of Simple Design. John Gallup. *Bull. Am. Ceram. Soc.*, **23**, *38-9 (1944.)* A uniformly polarized field is gotten by using a sheet of black Carrara glass set at the polarizing angle for red light, plus a sheet of Polaroid "J" film, with its polarization direction parallel with that of the mirror. The analyzer is Polaroid "H" glass. (Through *C. A.*, **38**, *1150, 1944.*)

The Adsorption of Water Vapor by Aluminum Silicates. L. A. Zuev and E. N. Gapon. *Pedology* (*U. S. S. R.*) *1943, No. 8, 13-18* (in English 19). Bentonite was electrodialyzed to pH 5.5 and then treated with 90 milliequivalent of nitrogen and 90 and 45 milliequivalent calcium. The adsorption isotherm of water vapor by hydrogen, sodium and calcium bentonites was then compared with that of kaolin and humic acid. The bentonite and humic acid gave an S-shaped curve; whereas the kaolin did not and the quantity of adsorption was small. At low vapor pressures the bentonites in their effect on adsorption, can be arranged as follows: Sodium bentonite<hydrogen bentonite<calcium bentonite; at pressures approaching saturation the arrangement of the cations is H<Ca<Na. Kaolin has little effect on the adsorption of water vapor. (Through *C. A.* **38**, *3528, 1944.*)

Eczematous Contact Dermatitis Due to Mercurials. M. H. Samitz. *Arch. Derm. & Syphl.*, **50**, *No. 1, 10, 1944.* A 21-year-old soldier acquired eczematous contact type dermatitis associated with mercurial poisoning from the use of 10 per cent ammoniated mercury ointment. The possibility of allergic sensitivity to ammoniated mercury ointment should be borne in mind, and it and similar preparations should be prescribed and dispensed with caution.

Cholesterol Conversion Products Containing Sulfur. *U. S. 2,326,936.* A conversion product suitable for use in cosmetic creams or powders is produced by mixing cholesterol 1, with glycerol 2 and free sulfur 1 part and heating at 200-220 deg C. with agitation. (Through *C. A.*, **38**, *622, 1944.*)

FLAVORS

Solvents for the Flavor Industry

No single solvent can be utilized for all purposes by the flavor industry for certain solvents are better for some purposes than others

by MORRIS B. JACOBS, PH.D.

THE search for the ideal solvent for flavors still goes on. It is questionable whether the search for a single solvent for all purposes is worthwhile. Almost every solvent employed by the flavor industry has certain advantages and certain disadvantages. Thus even ethyl alcohol has the disadvantage of high cost and high volatility although the latter factor is at times an advantage. Thus in the case of flavoring of powders the volatility of ethyl alcohol assists in its rapid evaporation leaving the powder dry.

GLYCEROL

Glycerol, $HOCH_2CH(OH)CH_2OH$, glycerin, trihydroxypropane, is a clear, colorless, odorless, hygroscopic sirupy liquid, with a sweet, warm taste. It has a specific gravity of 1.262-1.265, boils at 290 deg. C. with some decomposition and has a refractive index of 1.1473. It is miscible with water, alcohol, and propylene glycol. One volume of glycerol is soluble in 11 of ethyl acetate. U.S.P. glycerol must contain not less than 95 per cent of this substance. It is not very soluble in many common organic solvents nor are many organic substances readily soluble in it.

Glycerol has been obtained by purely synthetic means, but its principal commercial source is as a by-product in the manufacture of soaps and fatty acids from oils and fats. It is purified by distillation.

Because of its sweet flavor and solvent properties glycerol was, and is used widely as a solvent for flavoring materials. It has been employed extensively in perparation of genuine and imitation vanilla extracts. Since it is hygroscopic, it is employed as a humectant or moistening agent in bakery products and in confectionery, principally to prevent the drying out of such products as icings and cakes. Glycerol has some preservative action against mold and hence is used in candy both as a preservative and as an additional sweetening agent. The high viscosity of glycerol is at times a disadvantage, particularly in its addition to a mixture, and at other times an advantage as in lending smoothness to a mixture.

PROPYLENE GLYCOL

Propylene glycol, $CH_3CHOHCH_2OH$, 1,2-propanediol, is a colorless, practically odorless, hygroscopic, somewhat viscous liquid. It has a specific gravity of 1.035-1.040, boils at 189 deg. C. and has a refractive index of 1.4300-1.4310 at 25 deg. C. The commercial product boils in the range 185-190 deg. It is miscible with water, alcohol, glycerol and many of the common organic solvents.

The Division of Pharmacology of the Food and Drug Administration conducted extensive investigations on both the acute and chronic toxicity of propylene glycol. Their review of available results shows that, in the amounts normally used in food products, propylene glycol is to be regarded as a harmless ingredient.[1] Consequently, this Federal Agency has decided not to interpose any objection to the replacement of glycerol or other solvent by propylene glycol in food products from the standpoint of the requirements of the Federal Food, Drug and Cosmetic Act. Because of this permission, the use of propylene glycol in flavor products has increased in recent years.

The neutral flavor properties and the solvent powers of propylene glycol permit it to be used in a variety

of different ways. Thus, if it is used to dissolve synthetic flavoring materials the addition of some water may still be possible. Because of its ability to lower surface tension propylene glycol assists in distributing evenly the flavoring materials used. Because it is hygroscopic, it can be employed as a humectant in confectionery and bakery products. Propylene glycol has some preservative action. In flavoring materials it serves to prevent mold growth and is better for this purpose than glycerol.

TRIACETIN

Triacetin $(CH_3COO)_3C_3H_5$, glyceryl triacetate, is an odorless, colorless, oily liquid which boils at 258-259 deg. C., has a specific gravity of 1.156-1.161 and a refractive index of 1.4306. One volume is soluble in 14 of water and it is miscible with alcohol. Because of its neutral flavor qualities and its solubility properties it can be used as a solvent and also as a fixative. Gazan[2] details many flavor compositions in which triacetin acts as the solvent.

Glyceryl monoacetin resembles glycerol in its solubility properties and *diacetin* resembles triacetin. There are two principal objections to the use of the acetins as flavor solvents. In the first place they tend to hydrolyze to yield glycerol and acetic acid giving the flavor mixture an acetic acid odor and secondly they impart an off-taste to the flavor.

ISOPROPYL ALCOHOL

Isopropyl alcohol $(CH_3)_2CHOH$, 2-propanol, is a colorless liquid with an odor which is somewhat harsh compared to ethyl alcohol and which has some resemblance to acetone but with a fruity note. It has a specific gravity of 0.783-0.789, a boiling point of 82.5 deg. C. and a refractive index of 1.3780. It is completely miscible with both water and alcohol. Isopropyl alcohol can be synthesized by the reduction of acetone or hydration from propylene which is a product of the cracking of petroleum. While the principal use of isopropyl alcohol is that of a solvent, it has been suggested for use in small amounts as a flavor component in apple, apricot, banana, currant, gooseberry and raspberry flavors.

In the ratio of 1 ounce per gallon of carbonated water, isopropyl alcohol has only a slight taste. Its odor, however, tends to mask the odor of other components of an essence hence it does not have the blending ability of ethyl alcohol. Isopropyl alcohol has had some advocates as a flavor solvent. It has, in common with aliphatic alcohols, a narcotic action. Isopropyl alcohol is not considered extremely toxic and it resembles in some measure ethyl alcohol in its physiological effect but is more harmful. The toxicity of the aliphatic alcohols has been reviewed by Oettingen.[3]

However, the U. S. Food and Drug Administration has stated that while pharmacological investigations have not established the relative toxicity of isopropyl alcohol, they feel that its properties are not sufficiently well-known to permit regarding it as suitable for use in colors which are to be certified.[4] This would imply that its use as a flavor solvent is also regarded with disfavor.

OTHER SOLVENTS

While propylene glycol and glycerol are considered safe components for preparation of flavoring essences, the Food and Drug Administration considers ethylene glycol, carbitol and diethylene glycol harmful.[5] This Agency states that these compounds are so harmful that their presence in excess of 5 per cent for topical application to small areas of the body would constitute a hazard.

MONOETHYL ETHER

The ethyl ethers of glycerol,[6] particularly monoethyl ether have been proposed as solvents for the preparation of flavoring extracts. They are stable, miscible with water, do not hydrolyze, have relatively high boiling points and therefore can serve as fixatives, and are said to show exceptionally good solvent power for the various essential oils.

EDIBLE OILS

Odorless, bland and tasteless edible oils have been used as solvents for flavoring materials particularly for the preparation of products for the bakery trade. Such products have a relatively well established position. They tend, however, to become rancid with time. This is a serious disadvantage. Furthermore, only "winterized" oils should be used to avoid precipitation of fats at low temperatures. Mineral oil has been used, at times, but is not regarded favorably.

While *ethyl acetate* (acetic ether) is considered a principal flavor component it may also be considered a flavor solvent for its real function is that of a blending component.

Acetic acid is used as a solvent for essences prepared for meat products. *Benzyl benzoate* is a solvent used for the artificial musks used principally for berry flavors.

REFERENCES

[1] U. S. Food, Drug Admin. FD&C Act Trade Correspondence TC-374, December 10, 1941.

[2] M. H. Gazan, "Flavours and Essences." Van Nostrand, New York, 1936.

[3] W. F. von Oettingen, U. S. Pub. Health Service, Pub. Health Bull. No. 218, 1943.

[4] U. S. Food, Drug Admin. FD&C Act Trade Correspondence TC-162, March 14, 1940.

[5] U. S. Food, Drug Admin. FD&C Act Trade Correspondence TC-402, May 14, 1943.

[6] U. S. Patent 2,180,932, Nov. 21, 1939.

Flavored Notes

Essential oils, flavoring extracts and essences should be protected from light by storing in colored bottles, particularly chlorophyll green bottles, although brown bottles also prove to be suitable. Light accelerates the decomposition of these materials.

* * *

Flavoring materials and essential oils are readily affected by oxidation. Consequently, it is good practice to keep the amount of air above these substances in their containers at a minimum. If a bottle of material has been partially used it is best to transfer the contents to a smaller bottle.

* * *

Pastes can be prepared in such viscous form that they can be pressed into segmented plastic blocks, each segment having sufficient flavoring material to flavor a given weight of food or candy.

* * *

Soft cakes containing chocolate or cocoa have their best flavor when the pH of the finished product is 7.5-7.8

M. B. J.

SOAPS

Buying Habits in the Purchase of Soap

The results of the 1945 survey conducted by The Milwaukee Journal among 142,000 consumers in the Greater Milwaukee Market . . . Trends indicated by comparing former surveys

from THE MILWAUKEE JOURNAL

THE use of soap products for fine fabrics varies little with income groups. In 1945 it ranges from 99.2 per cent in the lowest income group to 99.8 per cent in the top bracket.

At the top of the list, the favorite was Lux Flakes, with 43.6 per cent, representing 98,848 families. Both percentage and number are practically identical with the 1944 figure.

Ivory Flakes showed a good gain from 20.1 per cent in 1944 to 22.8 per cent in 1945. Ivory Snow in third place also shows a gain from 9.5 per cent to 10.2 per cent. Ivory Bar continues a four year decline and now is used by only 9 per cent, or 20,404 families. In fifth place is Duz with practically the identical percentage and number of families shown in 1944. A newcomer to the market, Chiffon Flakes, shows up for the first time with 2.9 per cent.

Other brands in the chart are Swan, Vel, Dreft, John Hanser's Flakes and Lux Bar. Fifty-eight brands were charted at under 1 per cent.

Distribution of leading brands in independent and chain grocery stores is much more spotty than in 1944.

In previous years it has been established by the Consumer Analysis that only 7.5 per cent of Greater Milwaukee families send the bulk of their wash to a commercial laundry. Furthermore, in this year's Consumer Analysis it is found that 91 per cent of the families own a washing machine. It is not strange, therefore, to find that soap products for household laundry are used practically universally in all income groups.

HOUSEHOLD LAUNDRY SOAP

Still in first place among all brands of soap products for household laundry is Fels Naptha Bar with 18.4 per cent, representing 41,674 families.

In second place is Oxydol, with 16.7 per cent. This, however, represents a decline from 18.5 per cent shown in 1944, and amounts to a loss of 3,000 families.

Continuing a very fine record shown since its introduction to this market, Duz goes into third place this year, increasing from 11.6 per cent to 13.6 per cent.

SOAP USED FOR DISHES

Every housewife has to do dishes, so the use of soap products for dishes varies little by income groups, from only 99.4 per cent in the lower income bracket to 99.7 per cent in the top income group.

Still in first place, but showing a substantial loss, is Ivory Bar. Ivory has only 19.1 per cent this year, compared with 23.3 per cent for 1944, and has lost nearly 10,000 families. On the other hand, Duz, another Procter & Gamble product, has continued its rapid progress and is in second place with 13.5 per cent. In 1944 the percentage was 11.9. Both percentage and numbers of families using Duz have almost doubled during the past four years.

Two other Procter & Gamble products, Ivory Flakes and Oxydol, are in third and fourth places, respectively. Ivory Flakes shows a substantial gain from 10.3 per cent to 12.3 per cent in 1945, and Oxydol a slight gain from 8.2 per cent to 8.9 per cent.

TOILET SOAP FOR BATH

The use of toilet soap for bath is universal, and varies only fractionally by income groups.

The most popular brand is Lifebuoy, which has declined in both

number and percentage of users. In 1945 Lifebuoy is being used for bath by 48,823 families, or 21.6 per cent of the families using toilet soap, compared with 50,335 families, or 22.4 per cent, in 1944. Lifebuoy distribution among independent grocers has increased to 88 per cent in 1945, compared with 82.6 in 1944. Drug stores' distribution of this brand has declined slightly to 65 per cent in 1945, compared with 66 per cent in 1944. Lifebuoy is found in each of the chain grocery store organizations.

Second brand in popularity is Ivory, also used by a slightly smaller number and percentage of families. Ivory users number 40,912 families, or 18.1 per cent, compared with 41,796 families, or 18.6 per cent, in 1944. Ivory Soap distribution among independent grocers has increased to 94 per cent in 1945, compared with 87.9 per cent in 1944. Independent drug store distribution of Ivory has increased greatly to 66 per cent in 1945, compared with 24 per cent in 1944. This brand is also stocked by all chain grocery and drug outlets and department stores.

In addition to the 10 leading brands there are also 52 other brands of toilet soap, each of which is used for bathing by less than 1 per cent of the families.

HAND AND FACE TOILET SOAP

An increase in the number of families using toilet soap for hands and face is recorded for 1945, with a very slight drop in the percentage of families.

Lux is the most popular brand of toilet soap used for hands and face and is being used by a larger number and percentage of families. The number using Lux in 1945 is 57,412 families, or 25.4 per cent of the users of toilet soap for hands and face, compared with 55,054 families, or 24.5 per cent in 1944.

Second in poularity is Sweetheart, being used by a smaller number and percentage of families in 1945. Sweetheart users number 40,008 families, or 17.7 per cent, compared with 43,369 families, or 19.3 per cent, in 1944. Third brand in order of preference is Ivory, used by 33,227 families, or 14.7 per cent in 1945. In 1944 Ivory users numbered slightly less at 33,032 families, but the percentage was the same.

Fourth brand in popularity is Palmolive, used by 30,514 families, or 13.5 per cent. This is a slightly smaller number and percentage than the 31,459 families, or 14 per cent, using Palmolive in 1944.

BUYING TRENDS

The trend continues to be strong toward the concentration of purchasing of fewer brands. The one exception to this decline in numbers shows itself in soap products used for dishes, where two more brands are listed this year than last.

FINE FABRICS SOAP

Year	Number
1945	69
1944	71
1943	79
1942	84

LAUNDRY SOAP

Year	Number
1945	69
1944	89
1943	121
1942	125

SOAP FOR DISHES

Year	Number
1945	100
1944	98
1943	106
1942	130

SOAP FOR THE BATH

Year	Number
1945	62
1944	67
1943	74
1942	75
1941	73

SOAP FOR HANDS AND FACE

Year	Number
1945	71
1944	91
1943	87
1942	89
1941	89

HAND SCOURING SOAPS

This is the first year to present the subject of hand scouring soap through the Consumer Analysis. Comparisons with previous years are therefore not available.

It was found that 91,278 men, or 40.1 per cent of the men among all Greater Milwaukee families, are using products of this type.

The smallest percentage of men in any one income group using hand scouring soaps, or 33 per cent, represents men of the highest income group. The percentage of users in each income group grows larger as incomes decline, until 45.9 per cent of the men in the lowest income group are found to be using this type of soap. The use of 61 brands of this soap was reported.

Of these, 4-U is the most popular brand, used by 30,761 men, or 33.7 per cent of all men using scouring soap. 4-U is stocked by 41 per cent of the independent grocery stores and the A. & P. food stores.

Lava is the second brand in popularity, used by 32.3 per cent of the men using this type of product. Lava has distribution among 75.7 per cent of the independent grocers and both of the chain grocery organizations.

Third brand in popularity is Boraxo, used by 12.3 per cent, and distributed by 52 per cent of the independent grocers and both of the chains. Flash, the fourth most popular brand, is used by 10.1 per cent, and is stocked by 58.3 per cent of the independent grocers and the National Tea stores. White Sail, the A. & P. food store brand, is fifth in popularity.

Of the various brands of hand scouring soaps, 54 are used by 8.8 per cent of those using this type of product.

CLEANING PRODUCTS FOR WALLS

New highs have been reached in both number and percentage of families using cleaning products for walls and woodwork. In 1945, 173,223 families, or 76.1 per cent of all families, are using products for these purposes, compared with 166,837 families, or 73.8 per cent, in 1944.

The greatest popularity for products of this kind is among families in the lowest income group, of which 78.4 per cent are users. A total of 208 brands of these products are in use in 1945.

The most popular brand is Soilax, used by 20 per cent of all families using this type of product.

Badger Master Craft is the second most popular brand, used by 15.1 per cent of the families.

In addition to the 20 leading brands named, 188 brands of cleaning products for walls and woodwork are used by 32,046 families, or 18.5 per cent of all families using this type of product.

by ARNOLD KRUCKMAN

WASHINGTON people with special knowledge of your industry think the strikes are important to you in their direct as well as indirect effects. It is reported the disturbances already have interfered with transportation, with the delivery of fuel, and with the distribution of other supplies. It is surmised early in October, that the situation will be worse before it is better. Government officials who should know, say, off the record, that the cosmetics, toiletries and flavors industries are among those chosen by CIO, and UMW, for an intensive unionization drive as soon as the strikes themselves give the union reason to feel they have made enough headway to put on the campaign.

AF of L ORGANIZATION

The AF of L naturally will be forced to follow the same trail, but it is not as eager to force the issue. AF of L is essentially a business organization, which primarily acts as broker for its members. It has a large and stable membership, made solid and reliant during the fifty years' existence of the AF of L. CIO, on the other hand, is primarily a political and socialistic institution, largely devoted to agitative activities. The UMW, John Lewis's organization, partakes some of the qualities of the AF of L, but also has some of the restlessness of the CIO, being, however, wholly different in its political and social philosophy from the CIO. Whatever the John Lewis organization may otherwise be, it is deeply, unshakeably American in its devotion to the idea of democracy.

The Government labor experts think the CIO will make the most vigorous drive to unionize the cosmetics, toiletries, flavors industries as well as drug and other chemical industries which have some unskilled help. The drive will chiefly be aimed at organizing the least skilled workers, women as well as men. To this end the CIO is now going through the preliminary steps. It is reported to have raised well over a million dollars, which will be spent by the Political Action Committee—PAC—to build up goodwill among the people who live in the 15 key cities whose voters are credited with swinging the result of the last Presidential election. The word is that a house-to-house campaign either is in progress, or will be launched, to supply the grass-roots in the cities with the understanding and enthusiasm for the cause of labor that will be communicated to the White House, the Congress, and to the country at large.

UNION DEMANDS

The unions now want just as much pay as the workers took home during the war, and they want this scale to be paid for less hours of work. The demand for 30 per cent increase is regarded as a bluff. Government, early in October, thinks they would readily settle for 12 per cent to 15 per cent. Your friends here suggest that whatever happens, it is horse sense to recognize that the pay given the organized workers will set the standards for un-organized workers; and the general scale will have an effect on the products, and the machinery of production and distribution, of those with whom you do business, and will either raise or lower the prices you pay for what you buy —materials, finished products, or services. Your friends also warn that it will be wise to become thoroughly familiar with all the labor laws of your State, and with the Federal labor laws.

CIO is making capital of the figures recently announced by WPB. The report covers the 42 major parts of the national economy which are based upon chemicals. The figures show the laudable fact that the industry producing perfumes, cosmetics, and toilet preparations in 1939 made commodities totalling a value of $212,500,000; in 1944 the production jumped to $408,000,000. The report also revealed that finished coal tar products, almost solely dyes, flavorings, and perfumes, in 1939 totalled $105,000,000, while in 1944 the total had curved upwards to $242,000,000.

CIO MEMBERSHIP DRIVE

The CIO is bound to put on a dramatic membership drive because it has been losing members. The United Automobile Workers of CIO, the largest unit, has lost over a million members in a few months. Neither AF of L, nor UMW, have lost any substantial number. What is the CIO program? Its secretary recently told this reporter it does not wish this country to develop foreign trade. It thinks full employment, here, with lower prices, means more profits, and more goods, and more consumers with money to buy the goods, and no surplus to export elsewhere.

In other words, if you make cosmetics and toiletries and sell them cheaper, CIO thinks there will be in-

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finitely more consumers; and the consumers, in turn, will mean more producers and more workers employed by the producers; and this expansion at less profits will eliminate any need for exports. Full employment, lower prices, in CIO thinking, spells more business in North America and no surplus for any other part of the world. CIO is convinced Government should place industrial engineers and managers in the $20,000,000,000 worth of idle war plants and produce for consumption, and to make work, not for profits. It would use some of the facilities of the plants to make raw materials as well as fabricated products to supply cosmetics, toiletries, flavors, and perfumes.

Washington is convinced the big basic industries want the labor showdown now. It is assumed they have made all the profits this year they are capable of earning, outside of the excess profits category. It is supposed they feel they can afford strikes or lay-offs. The interim will give them time to make blueprints for the future, and adjust their internal affairs. They can use the time to get ready for next year, when Congress is expected to see to it there will be no excess profits tax. The groundswell tells Washington the public is not in sympathy with the strikers—now. The consumer is sore because reconversion production of needed civilian merchandise and equipment is delayed. We now still have a sellers' market for labor. Next year, with millions of service people released, Government expects it will be a buyers' market of labor for industry.

GOVERNMENT'S PLANS

What is Government's position? The Hill and the White House are listening for the voice of people. Whatever the majority of voters appear to want, the Government will do. All Congressmen come up for reelection next Fall. Meanwhile expedients will serve until trends are clearer. Unless all signs fail, the $25-for-26-weeks will become law; and the Full Employment bill will be enacted in some form. Labor Department has come out vigorously for the minimum wage between 60c. and 80c. an hour; it is anticipated the minimum will be fixed at 65c.

President Truman also insists on more liberal and expanded application of Social Security to workers in other fields. The prestige of the party is entangled with the prestige of the President, in all this. Labor Secretary Schwellenbach, patient, moderate, well balanced and human, approves the "purchasing power economic doctrine" of Lord Keynes and Bob Nathan, which means production for consumption rather than production for profit. He says: "There was a time when our problem was the problem of production; now the problem is to develop consuming power. For money to increase purchasing power it must be distributed among a large number of people." He thinks conciliation, mediation, and arbitration in strikes must be accepted *voluntarily* by both sides. But when they have accepted the rules of the game, he insists they must abide by the decision, even if compulsion is necessary.

Senator Brien McMahon, of Connecticut, has introduced S. 1419, which would make these principles law. Congressman C. M. LaFollette, Indiana, has introduced a similar bill, with the added joker that would empower the President to turn over one idle war plant to workers' cooperatives to make cosmetics and toiletries, and another idle plant to a Government Department to do the same thing, as an enterprise of Government. Both operations would be used as guinea pigs to determine how public enterprise compares with private enterprise under competitive conditions. The CIO and the liberals will go all out to secure enactment of the bill.

S. B. FALCK ENTERS INDUSTRY

Sylvan B. Falck, who has been in Government service for almost 15 years, in the Food and Drug Administration, and the Cosmetics and Toiletries Section of the Chemicals Bureau of WPB, leaves to enter private industry at the end of October. He is the last head of the Cosmetics and Toiletries Section; when he goes there will be virtually little left of the Section. The swift fading of the Chemicals Bureau is strikingly evident from the fact that two years ago it had a personnel of 600 specialists; on the first of October it had 60. Few will be left in November. WPB itself is expected to close completely the end of the year. The alcohol control order is virtually the only regulation left that affects the toiletries and cosmetics industry.

There appears to be no actual shortage in the alcohol supply for the industry. Manufacturers are not receiving all they want, but apparently they are getting all they currently need. Industrial alcohol is still tangled up with the situation involved in the subsidies which also are concerned with subsidies for molasses and kindred material. Alcohol apparently will not be entirely free until high cost production levels off. Bottles now are entirely free of restraints. The industry is able to obtain all the glass containers it wishes. The suppliers have some troubles about machinery and labor, but seem to be able to provide all calls for bottles of standard designs. But the part of the restraining order which controls the use of molds has not been revoked. This obviously prevents the cosmetics and toiletries industry from obtaining special new shapes and types.

FATS AND OILS SHORTAGE EASES

The controls over castor oil, (WFO 137), red oil (WFO 53), tall oil (WFO 136), and stearic acid (WFO 129), were revoked by the Department of Agriculture at the end of September. A moderate easing of the shortage of fats and oils was announced for Fall and Winter as the result of a reduction in military buying *and the end of lend-lease.* But the shortage of industrial fats and oils prompted the Government to offer an incentive in points to those who continue to salvage fats.

The Department of Agriculture also revoked controls over lemon oil and peppermint oil. There was an increase of 9500 tons in the fourth quarter allocation of lead which substantially increased the resources for delivery of collapsible tubes. The 5000-ton allocation for the fourth quarter was increased upwards of 1000 tons. While the supply is not equal to all needs, it is reported the additional allocation markedly relieved the pressure on the suppliers, who also have been compelled to struggle with machinery shortages and lack of manpower.

PAPER CONTAINERS AVAILABLE

Inventory shortages are common to almost all suppliers who serve the industry. Paper containers of all kinds are freely available, at least in theory; the controlling orders have all been

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revoked. There are still some difficulties which inevitably follow the adjustments from the war economy. In order to make the production more attractive, OPA on October 2 issued Amendment 7, RMPR 187, effective October 8, which permits manufacturers of paperboard boxes, tubes, and other types of containers, who use higher-priced materials, to raise their prices.

OPA suggests if a toothpaste manufacturer now wants to go in for a more attractive carton for his product, he will find it easier to get if he wishes to use a higher-priced paperboard. The price-increase is not permitted to container manufacturers who already use higher-priced materials. In effect the OPA regulation permits the container manufacturer who may benefit to add some of the higher cost to his prices. Formerly he was compelled to absorb any increase in cost.

There has been little change in the supply of closures. Only tinplate closures remain under control. Tin is more scarce than it was a month ago, even though a new supply has been contracted for delivery from Bolivia. Tin stockpiles are rapidly being exhausted and there is no hope of early relief from Asia. Tin remains one of the most acute problems left over from the war.

LATIN AMERICAN MENTHOL

U. S. Agricultural Economist Henry W. Spielman, attached to the U. S. Consulate General at Sao Paulo, Brazil, reports the production of menthol has become an important enterprise in the Latin American country, since the beginning of World War II. He states the industry has been permanently taken out of the hands of the farmers and distillers in Asia. Brazilian production is controlled by *200,000 Japanese in Sao Paulo*, the menthol center. They brought the mint plants from Japan when they came to South America after the earthquake of 1923. There are 20 manufacturers in the State of Sao Paulo.

Bankers and wealthy industrialists have set up modern crystalizing plants and have gone into the business in a large way. They operate their own export organization, and have their own agents in the United States, where they sell most of the oil. Independent exporters collect the oil from small local operators, and ship like other export operators.

Two cuttings of mint average per acre 44 pounds of oil. The best oil is obtained from the second cutting between February and March. The menthol is extracted by a freezing process. The 1943-44 crop amounted to 385 short tons of oil, 200 tons of menthol. The 1944-45 crop is expected to yield 550 short tons of oil, or between 220 and 275 tons of menthol crystals. Droughts this year have lowered the yield per acre. The trade policy of the Brazilians, in connection with menthol, reports Mr. Spielman, is to make concessions to hold the market in the United States, even if a more cheaply produced menthol is placed in competition from the Far East. From Rio de Janeiro comes word because of failure to reach an agreement with importers in the United States, the Brazilian Coordinator of Economic Mobilization has declared menthol free from export price control. Menthol may now be exported from Brazil at prices arranged by buyers and sellers, subject to export licensing.

BRAZILIAN DOMESTIC INDUSTRY

Recent word from Brazil reveals that the trend in the country of the bulge is towards a high integration of domestic industry and nationalization of industry especially in relation to cosmetics and toiletries. It is roughly estimated 90 per cent of the products used in Brazil and exported to other Latin American countries from Brazil is made in Brazil. American observers think that it will be necessary for American firms to establish branch plants in Brazil in order to sell their products and to compete with existing industry. It is anticipated the Department of Commerce, in keeping with Secretary Wallace's new policy, will issue a detailed report on the subject.

SURPLUS PRODUCTS

Surplus of finished cosmetic and toiletries products thus far reported for disposal by the armed services have totalled approximately $2,000,000. They came from the PX, meaning the Post Exchanges and Navy Stores, which provide many various supplies for the soldiers and sailors. The bulk of the surplus consisted of shaving creams, face lotions, and toothpaste, although there were some products representing almost every other type of cosmetic and toiletries. It is reported practically all the surplus was immediately sold to the original producers. This surplus naturally is only the first superficial skimming of the products which are expected to come back from the PX in this country as well as in Europe and in the Far East. No one will venture a guess what the total may even approximate. Apparently the policy of the Army and the Navy, as well as the Surplus Office of the Department of Commerce, and the RFC Surplus Office, will be to give the original manufacturers the first chance to purchase, after the legal obligation of offering to the several agencies of the Federal Government, the States and the local governments, and the various institutions, as well as veterans and small business men, has been fulfilled. This proceeding, as presently conducted, is less time-absorbing than it sounds.

WAC ESTABLISH BEAUTY PARLORS

Army reports the WAC in New Guinea or the Philippines, or in any other remote place of the world, almost always find a beauty parlor in the PX—Post Exchange. These modern beauty parlors, in the jungle, are thoroughly well equipped to give facials, manicures, or permanent waves. The customer must supply her own nail polish if she wants color, and she must bring her own towel. The Special Services Division of the Army supplied the equipment. Operators were recruited from among the WAC who were professional beauty shop operators in private life. The first shop was set up in the jungles of New Guinea.

At Manila the WAC moved in their beauty parlor with the first victorious Army. They installed themselves in a room in LaSalle College. In the Philippines they give mud packs and similar treatments. One of the outstanding operators is Technician Fifth Grade Gertrude L. Gilbert, of New York City; also Technicians Fifth Grade Jeanette Rupp, McKittrick, Calif.; Frances M. Novak, Euclid, Ohio, and Rita Meyers, Buffalo, N. Y. Mrs. Douglas MacArthur, is a frequent customer. Army nurses, Red Cross girls, and American women, who had survived in Manila, also were served, although technically the shop is solely for the use of WAC.

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The importance of the base for cosmetic, medicinal and other products can hardly be over-estimated. Success or failure can hinge on the proper selection of a white oil or petrolatum.

Penn-Drake has much to offer you in this connection—not only a wide range of grades to meet your specific needs, but also highest quality and desirable characteristics for your work. Furthermore, when *special* grades are needed, Penn-Drake can make them.

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NEW PRODUCTS AND PROCESSES

"Elasti-Cals" Return

"Elasti-Cals" are now available in unlimited quantities for all uses.

This decalcomania, produced by the Meyercord Co., made of stretchable material and applied to rubber and other elastic surfaces, had reached a wide use before the government took over the entire output.

Elasti-cals utilize elastic materials in printing and manufacturing operations to provide markings which are stretchable.

New Insecticide Concentrate

A new insecticide concentrate, Thanite plus DDT, that possesses an excellent quick knockdown and sure kill rating, is now available to insecticide manufacturers for effective civilian fly sprays, according to Hercules Powder Co. officials.

According to research carried on by the University of Delaware, Hercules, and other agencies, Thanite has an excellent quick knockdown strength and DDT a poor quick knockdown strength.

By combining the two, excellent knockdown and sure kill are achieved —the attributes of an ideal insecticide concentrate.

Mixed Isopropanolamine Available

Mixed isopropanolamine is now available from Carbide and Carbon Corp., manufacturers of emulsified finished products, particularly those where the color of the finished product is important, will be interested in mixed isopropanolamine.

Its makers state that under laboratory tests it has been definitely established that under normal storage conditions, mixed isopropanolamine soaps are more resistant to darkening than are ethanolamine soaps.

Mixed isopropanolamine soaps are completely oil-soluble. This amine product, which is a viscous, hygroscopic liquid with a slightly ammoniacal odor, is completely soluble in water, but only slightly soluble in hydrocarbons. The combined weight of mixed isopropanolamine is 135 to 145.

Further information may be obtained by writing Carbide and Carbon Chemicals Corp.

Drum Opening Tool

The O'Brien Drum Opening Tool has been placed on the market by Merrill Brothers. This simple but powerful, fast cutting tool operates on the same basic principle as the familiar can opener.

It is made of a steel drop forging, 23½ in. long, weighing 5½ lbs., and with it the top of a steel barrel or other metal container can be cut away with ease.

Its makers claim that it not only saves long, tedious cutting with chisels or hatchets, thereby saving time, but eliminates the damage and mishaps encountered in opening drums in this way.

It also prevents the danger of the contents, such as chemicals, corrosives and other materials, from splashing and getting on the hands of the operator.

Book Reviews

THE CHEMICAL FORMULARY, VOLUME VII, H. Bennett. 474 pages, indexed. Chemical Publishing Co., Inc., Brooklyn, N. Y. Price $6.00. Published 1945.

The latest issue of The Chemical Formulary, which is issued every two years, is now available in Volume VII. This volume contains over 2500 formulas for making almost any product from adhesives to zinc solutions for rust prevention. A large section is devoted to the drug and cosmetic field.

Directions for making the formulas are simple and direct. In addition, the volume contains an index giving the names and addresses of firms handling certain products used in the formulas.

TABLET MANUFACTURE, John A. Silver & Ronald Clarkson. 70 pages, illustrated and not indexed. F. J. Stokes Machine Company, Philadelphia, Pa. Price, $3.00. Published 1944.

Practically every phase of pharmaceutical manufacture as it is practiced by industry is neglected when it comes to books on the subject. The U.S.P. and N.F. set standards for many pharmaceuticals, but few manufacturing processes are described. Tablet manufacture is one of the branches of drug manufacture suffering from a dearth of literature. The last book on the subject was published at the turn of the century and there has been nothing since. So it is into a practically virgin field that the authors launch their book on the manufacture of compressed tablets. Now let us see how well they accomplished their task.

Anyone will have to admit the subject is a vast one. To be able to cover the rudiments in 70 pages, 20 of which deal with formulas and 5 pages for advertising, is an impossible task. The book is only 5 inches by 7 inches or a bit more. Illustrations are well used, but take several pages. So all in all, there are about 40 pages devoted to the complicated subject of how to manufacture compressed tablets.

There are a lot of things that should have appeared, as for example tinting of tablets, coating, formulating tablets of readily oxidizable substances such as of ferrous sulfate or ascorbic acid among others. Even-so, the rudiments are explained in fairly simple language so anyone can understand them.

If the material in this book were published as a chapter of a book on pharmacy, one could justify the resumé-like character of the contents by saying that there was insufficient space to devote to the subject. But it is difficult to justify the existence of this brief material as a book at the price called for. As a primer to buyers of tableting equipment it would be an excellent advertisement.

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WHAT SINGLE INGREDIENT has magical consumer appeal? You'll find the answer waiting for you in the corner drug stores of America. Preference for products enriched with LANOLIN is overwhelming!

In the words of a neighborhood druggist, "We recommend as more beneficial the toiletry that contains lanolin. Customers accept it more readily, and some even *ask* for a product that contains lanolin."

The cue for post-war profits is clear! Start experimenting with Malmstrom's Nimco Brand Lanolin today. Yours for the asking are testing samples — and the know-how that has made Malmstrom "America's Largest Supplier of Lanolin."

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DEGRAS • Neutral and Common • Wool Greases

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AMONG OUR FRIENDS

▸ Richard M. Krause, Jr., who entered the U. S. Army in 1942, has resumed his duties with Richard M. Krause, Inc., New York, N. Y., and has been elected vice-president of the firm. Mr. Krause served as a Master Sgt. in the Army for 35 months, and received his honorable discharge a short time ago.

Richard M. Krause, Jr.

When he enlisted, he was active manager of the company.

▸ Alan B. Bell, technical director of Evans Chemicals, Ltd., arrived in New York from England on Sept. 19, for an extended visit with Evans Chemetics, Inc., New York, N. Y.

Mr. Bell is here for the exchange of technical ideas, the formation of a better liaison, and the extension of export business for both Evans Chemetics, Inc., and Evans Chemicals, Ltd.

▸ Marjorie Newson-Smith, director of Dorothy Gray, Ltd., London, is in New York for a visit. She plans on remaining in this country for about two months.

▸ S. Askin, industrial relations director of Heyden Chemical Corp., New York, N. Y., has been appointed assistant secretary to the company. Mr. Askin became associated with Heyden in Oct., 1943, as business manager of the Princeton, N. J., plant, which produces penicillin. Subsequently, he was placed in charge of industrial relations of all plants. Before joining Heyden he held a number of executive positions in other commercial organizations.

S. Askin

▸ Miss Marjori Bennett has joined Primrose House, Inc., New York, N. Y., as merchandise manager, which will include merchandising, designing and styling new packages. She was formerly with Lehn and Fink as package and product designer for Tussy Cosmetiques, and was display designer for Dorothy Gray's Fifth Avenue Salon. Previous to that, she was stylist and head designer at Eaton Paper Co.

▸ Kenneth Sutherland has joined the staff of Bjorksten Laboratories, Chicago, Ill., as a chemist. Mr. Sutherland was previously with Turco Products, Inc.

▸ J. Harvey White has been appointed to the staff of Florasynth Laboratories, Inc., New York, N. Y., in the Chicago region. Mr. White comes to Florasynth direct from the War Production Board where, in his connection with the Government throughout the war, he was engaged in technical development work and in liaison and coordination between the War Production Board, the Army, Navy and Maritime Commission agencies.

J. Harvey White

▸ Georges Acuna has completed a 100 day business tour of Cuba, Mexico, Haiti, Santo Domingo and Central American republics on behalf of Van Dyk & Co., Belleville, N. J., and is now enjoying a vacation in Miami, Fla.

▸ Eric Coupey, New York, N. Y., who is well known throughout the essential oil industry with which he has been associated for many years, flew to France October 2, where he will spend a month or six weeks in a first hand investigation of conditions in the producing sections, especially Grasse.

▸ B. Ostroff has been made manager for Pittsburgh and surrounding territory by P. R. Dreyer, Inc., New York, N. Y. His address is 1609 Investment Building, Pittsburgh 22, Pa.

▸ Jerome A. Straka has been appointed to the position of executive vice-president of Yardley of London, Inc., New York, N. Y. He was made a director of the company at the same time. Prior to his joining Yardley, Mr. Straka was vice-president and assistant to the president of Colgate - Palmolive - Peet Co. located in Jersey City, N. J.

Jerome A. Straka

▸ Pierre Bouillette who has been doing consulting work for Companhia Gessy Industrial, Sao Paulo, Brazil, one of the larger South American concerns manufacturing soaps, perfumes and cosmetics, is again in the United States calling on friends.

▸ Marion Hammon has been appointed director of publicity for Hudnut Sales Co., New York, N. Y. Miss Hammon has been beauty editor of Macfadden Women's Group for the past eight years.

▸ Major Stephen Ogden has been re-elected executive vice-president of Alfred Dunhill of London, Inc., and Mary Dunhill, Inc., New York, N. Y.

Stephen Ogden

During Major Ogden's three years in the Army Air Corps he was executive officer of a heavy bombardment squadron in Italy for 18 months, during which period he was awarded the Bronze Star Medal, Presidential Unit Citation Badge with Oak Leaf Cluster, and European Theatre Ribbon with eleven campaign stars.

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Whatever perfume problem you have, bring it to Du Pont. Our Aromatic chemists and perfumers have the "know how" you may need to help preserve any product's fine fragrance. You can always depend on Du Pont.

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▸ To meet the rapidly expanding requirements of chemical and drug research, three additional consultants have been added to the staff of Ralph L. Evans Associates, New York, N. Y. They are: Eric J. Hewitt, Charles P. Shillaber and Florence E. Wall.

Eric J. Hewitt

Eric J. Hewitt was formerly director of research for Rare Chemicals, Inc. He is well known in the field of bio-chemistry, with earlier experience in research at the College of Physicians and Surgeons, Columbia University, as an instructor at Hunter College, and as chief biochemist with National Oil Products.

Charles P. Shillaber

Charles P. Shillaber has long been a consultant in all branches of industrial microscopy. He is an established expert on analytical methods utilizing light, and is the author of *Photomicrography in Theory and Practice*, and of many articles on microscopic technics.

Florence E. Wall was recently technical editor for the Central Research Laboratory of General Analine and Film Corp. Her earlier experience was in teaching and as a consultant, specializing in cosmetics and cosmetology, during which time she lectured on the subjects at New York University. She is an author of books and articles, and is a recognized authority on technical writing. Miss Wall has been made technical editor, in charge of information and publications.

Florence E. Wall

▸ Frances Wheatley has been appointed sales manager of Tone Laboratories, New York, N. Y. Miss Wheatley was formerly associated with the Whalen Drug chain and with Associated Products, Inc.

▸ Robert J. Bowie has been appointed export manager of the European division of Bristol-Myers Co., New York, N. Y. Mr. Bowie was born in England, and has had twenty years' experience in export in France and several Latin-American countries. He will establish headquarters in London.

▸ William L. Young has been appointed manager of the Pittsburgh, Pa., division of Lever Brothers Co., Cambridge, Mass.

▸ Isaac Fogg has been elected president of Atlas Powder Co., Wilmington, Del. Mr. Fogg started with Atlas in 1913 as confidential secretary in the office of secretary-treasurer. He became assistant secretary and assistant treasurer in 1917. He was elected treasurer and member of the Board in 1927 and vice-president in 1931.

▸ Charles A. Pennock, president of Hudnut Sales Co., New York, N. Y., has accepted the invitation to serve as chairman of the Cosmetics and Toilet Goods Division of the National Service Fund of the Disabled American Veterans.

Charles A. Pennock

The Disabled American Veterans, through its National Service Fund, is conducting a national campaign to raise $10,000,000 to expand its nationwide service program through the addition of at least 400 National Service Officers. This organization has been rendering assistance to war-disabled veterans for the past twenty-five years, and was chartered by Congress in 1932.

▸ Lt. Jack Lloyd, after three years service in the U. S. Navy, has joined the Tangee Sales Staff of the George W. Luft Co., Long Island City, N. Y. He will cover the Pacific North West territory and will maintain headquarters in Seattle, Wash.

▸ Walter J. Kent has been appointed purchasing agent of Mary Dunhill, Inc., New York, N. Y., to take the place of Myron Penn, who recently resigned.

▸ Leland I. Doan now assumes the position of director of sales of The Dow Chemical Co. He has been general sales manager for the past 16 years, having begun his career with Dow in 1917. He has been a vice-president of the company since 1936, and secretary since 1941. He holds several offices and directorships in various Dow subsidiaries.

Leland I. Doan

Donald Williams has been appointed general sales manager of The Dow Chemical Co., Midland, Mich. Mr. Williams, who has been assistant general sales manager since 1933, joined the Dow sales staff in 1924. He was in charge of the Dowflake sales division from 1929 to 1933. He graduated from Pennsylvania State College in 1916, and before coming to Dow was connected with the Philadelphia Wool and Textile Assn., and with the Extension department of Michigan State College

Donald Williams

Donald K. Ballman

Donald K. Ballman has been made assistant general sales manager. Mr. Ballman graduated from Indiana University in 1929 and, after working with the Sears Cabinet Co., returned to the University in 1934 for his Master's degree. He joined Dow in 1935. In 1943 the Technical Division was organized under his managership, where he has served until his present promotion.

▸ James Crowley has joined Parfait Sales, Chicago, Ill., as director of sales promotion and advertising.

News and events

Fritzsche Brothers Changes Officer Alignment

Certain changes in the alignment of official personnel following the death last July of W. A. R. Welcke, first vice-president and treasurer, has been announced by Fritzsche Brothers, Inc., New York, N. Y.

The officers are now as follows: President, F. H. Leonhardt; first vice-president and treasurer, John H. Montgomery; second vice-president and secretary, H. P. Wesemann; third vice-president, Dr. Ernest Guenther; fourth vice-president, J. A. Huisking; manager and director of Clinton Chemical Laboratories, Dr. A. Nicolaus; assistant treasurer, R. R. Redanz; assistant secretary, D. A. Neary, and comptroller, G. Wohlfort.

Messrs. Leonhardt, Montgomery, Wesemann, Huisking and Nicolaus compose the Board of Directors.

Prentiss & Co. in New Quarters

R. J. Prentiss & Co., New York, N. Y., has moved its executive offices from 80 John St., to 110 William St.

George Lueders & Co. Celebrates 60th Anniversary and Honors Veterans

George Lueders & Co., New York, N. Y., celebrated its 60th anniversary October 10. An informal luncheon was given, attended by members of the Twenty-five Year Club, to pay honor to three Fifty-Year veterans of the organization: Edward V. Killeen, Ferdinand Weber and Miss Rosa Kroog. On behalf of the company, Frederick J. Lueders presented the new fifty-year emblem in the form of a lapel button for the gentlemen and a pin for the lady. These are of gold, a reproduction of the company seal with the letters "G L" in the center, flanked by two small diamonds. In his presentation, Mr. Lueders expressed the pride of the entire organization in its long association with the three guests of honor and conveyed to them the best wishes of all the employees. The Twenty-five Year Club, incidentally, boasts of 37 members, 23 of whom are living.

Emblem

The widespread business now known as George Lueders & Co., had a very modest beginning on October 10, 1885, at 13 Gold St. For several years previous to the establishment of his own business, George Lueders had traveled extensively for a prominent Grasse house, not only in America but in practically every country in Europe. The policy of direct contact with the trade was carried on by Mr. Lueders well into his late years so that he numbered a great many customers of his company as his personal friends. In his earlier years he was a member of the old Seventh Regiment of the New York State National Guard.

F. J. Lueders

For nine years the business was operated as an individual enterprise, but by 1894 expansion reached a point where a partnership was formed with Mr. Lueders as senior partner and Ferdinand Weber and Henry J. Heister as his associates. Subsequently larger quarters were taken at 213 and later at 218 Pearl St., the business eventually moving to 427 Washington St., its present location.

In 1906 a corporation was formed with Mr. Lueders as its active head, a position which he held until 1931 when he became chairman of the board of directors. Edward V. Killeen, one of the oldest members of the organization in point of service, was elected president. Mr. Killeen has carried on the company's traditional policy of personal contact with the trade but he relinquished his office as president in 1939. However, he is still active with the company in an advisory capacity. George Lueders continued as chairman of the board until his death in 1933.

Frederick J. Lueders, who is a son of the founder, succeeded Mr. Killeen as president of the company. The other officers are Ferdinand Weber, vice-president and treasurer; Frederick G. Buehler, vice-president; Ross LeB. Daggett, vice-president; George J. Waegelin, secretary; Frank M. Cordero, assistant treasurer, and George F. Weber, assistant secretary. Harry W. Heister, who has been with the company 47 years, is a member of the board of directors.

The company has branches in Chicago, San Francisco, Montreal and Mexico City.

Facts on Australia Told by Ross Walker to U. S. Cosmetic Trade

Ross M. Walker, managing director of Christy Products Aust. Pty. Ltd. and Blogg Brothers Pty. of Melbourne, Australia, and also of Christy N. Z. Ltd., Auckland, New Zealand, has been visiting the trade in this country and Canada with a view to promoting commercial relations between the Commonwealth of Australia, New Zealand, and the United States. Mr. Walker left Australia April 19 while the war was still on, so that the trip to the Pacific Coast took 23 days. While in the West, he called on the trade in Los Angeles, San Francisco and Seattle and then went to Vancouver and Victoria. After that he made calls in Chicago, Detroit, Cincinnati, Washington, Philadelphia and New York and from there went to New England and back to Canada, after which he will go to London, England.

Ross M. Walker

His companies have been established very many years in Melbourne and they manufacture a complete line of cosmetics, perfumes, toilet preparations and toilet soaps. Australia, as a whole, is not dependent on the importation of cosmetics and is not a field for the export of American toiletries as cosmetics are produced in volume by about 80 manufacturers, mainly located in Victoria and New South Wales. These include about a dozen American manufacturers who have been established there for many years.

Although it is a continent of about the same area as the United States, the total population of Australia is about 7 millions. Throughout the war, Mr. Walker reported, the country had a Labor government which accomplished wonderful results with rationing, price-control and direction of manpower. Today there is no unemployment problem there; in fact, there are more jobs than there are people to fill them. On the other hand, taxes are so onerous that the most any one man may earn after taxation deduction is about $3,300 annually. A 12½ per cent reduction in taxes is likely, but the need for more revenue to finance social security schemes may offset that. The sales tax alone is 25 per cent on our goods. During the years when American manufacturers were panting for alcohol, even to fill their restricted quotas, power alcohol was so plentiful in Australia that it was used as fuel in automobiles. Grain, grape and black strap molasses are the sources of the alcohol produced there.

There were many restrictions on manufacturing during the war and such lines as nail polish, perfumes, fancy creams, lotions, bath crystals and oils, hair dressing or brilliantine, composite gift sets, etc., were considered unessential and therefore were banned from manufacture.

Essential oils and aromatic chemicals were a great source of worry because neither this country, England, nor France were sending any quantity to Australia and the poor Australian perfumer was hard pressed in formulating suitable compounds. Such lines as terpinol, linalool, benzyl acetate, phenyl ethyl alcohol and the

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by SUMMIT

Summit Chemical Products Corp. is the oldest and largest manufacturer of Ammonium Thioglycollate. Summit developed Ammonium Thioglycollate from a laboratory curiosity into a commercial product that is the basis of the most successful and most widely used cold wave solutions.

Ammonium Thioglycollate by Summit is manufactured in a large and modernly equipped plant. Its unvarying high quality reflects the rigid and exacting scientific control of each step in its manufacture. Its reasonable price reflects the concomitant economies of large-scale production. Its preference by the leading manufacturers of cold wave solutions reflects its

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2...STABILITY
3...PURITY
4...FREEDOM FROM IRON AND BY-ODORS

Summit has also developed clouding and perfuming agents for cold wave solutions. Samples are available upon request.

Inquiries are invited from manufacturers technically equipped to manufacture cold wave solutions. Summit does not supply ready-to-use solutions, in bulk or otherwise.

SUMMIT

CHEMICAL PRODUCTS CORP.

MANUFACTURING CHEMISTS
BELLEVILLE 9, N. J.

more important essentials, were just unobtainable.

Mr. Walker is very proud of the job the Australians have done during this war and also expresses his appreciation for the ready help extended by the Americas. The good feelings established between these two countries, he feels, will continue to bring us closer together and should create a greater understanding of each other's problems. Mr. Walker also expressed his appreciation of the very courteous and pleasant welcome he received from all he had time to contact and regrets that his time was too limited to permit meeting others.

Mr. Walker left the United States for England October 15 and expects to be back in Australia before Christmas.

In honor of its perfume Spellbound, Lynette, Inc., New York, N. Y., entertained 400 guests on Sept. 19, at the Waldorf-Astoria Hotel. Buyers, store executives and representatives of the press were present for cocktails, dinner, dancing and a floor show featuring Morton Downey, the Golden Gate Quartet, Russell Swann, Eleanor Teeman and Dorothy Shay. Shown above are: Miss A. Mendez, Mrs. F. J. Stanton, F. B. Sinclair, F. J. Stanton, Mrs. F. B. Sinclair, Mr. Feidelman and Miss Tipperman.

On Sept. 26, a party was given by Primrose House, at the Cottage of Hampshire House, for the press of the magazine and newspaper beauty field. Its purpose was to present the Primrose House Christmas line. A cross section of those present included representatives from practically all the outstanding publications in the beauty field. James C. Kennedy, Jr., George Carroll and William Collier assisted the Misses Thompson, Cassin and Brown in the festivities. James C. Kennedy, Jr., Mary Brown and Bernice Peck are shown above.

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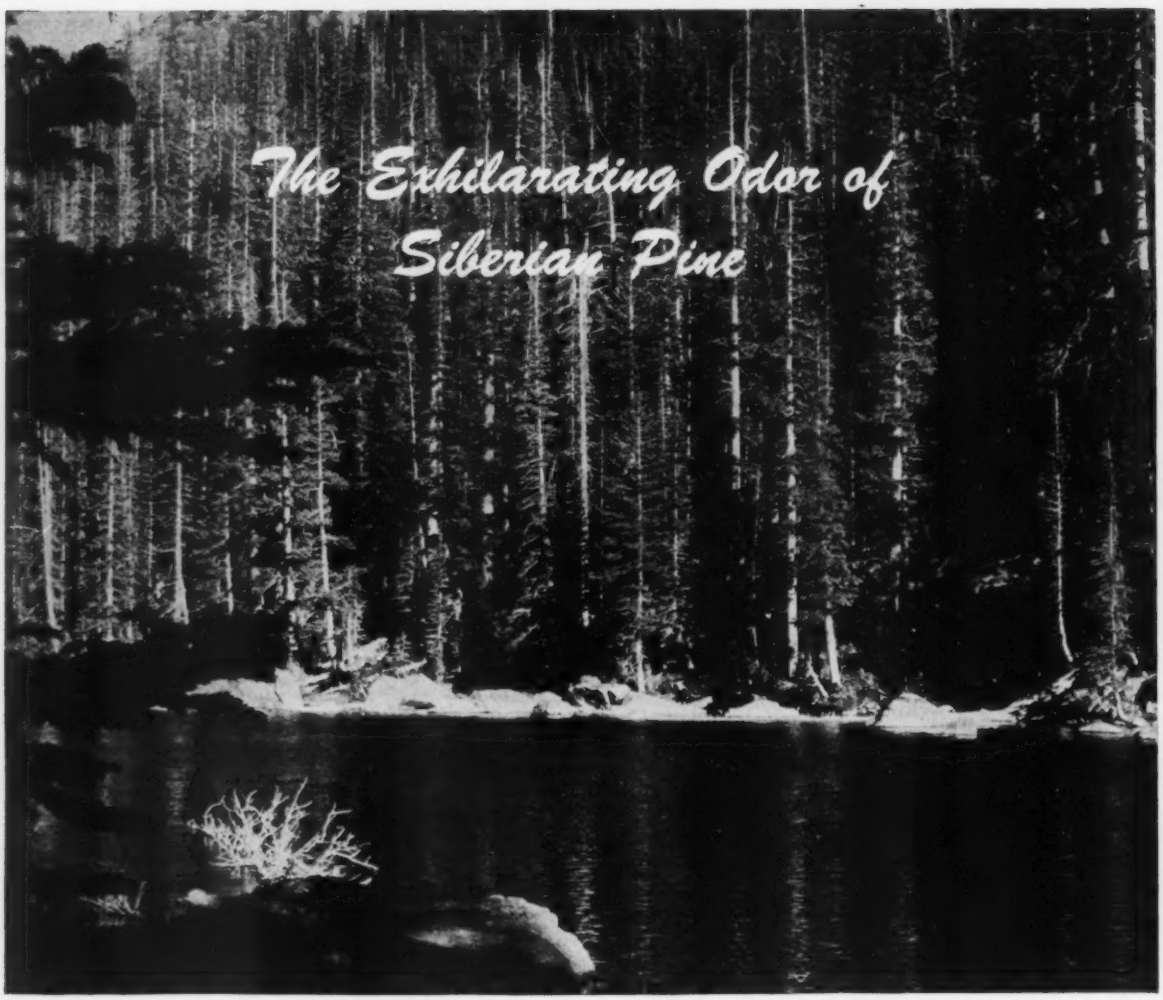

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San Francisco: Braun-Knecht-Heimann Co. • Los Angeles: Braun Corp. • Seattle, Portland, Spokane: Van Waters & Rogers, Inc. • Canada: Richardson Agencies, Ltd., Toronto

Leon Chiris Talks of Grasse and Changes in Chiris Organization

Leon A. Chiris, head of the well-known and long established Chiris enterprises throughout the world, who has just been released from his duties as an officer in the French Air Force with which he has served since the liberation of France as a navigator, is spending a short time in New York in order to resume his activities as chairman of Antoine Chiris, Inc.

In the six years that he has not been able to visit this country, he finds a tremendous development in the perfumery and cosmetic industries in the United States. "The American public has become far more perfume minded," says Mr. Chiris, "than it ever was before, and is rapidly approaching continental standards in taste and in demand for fine perfumes, not only in bottles, but also in the cosmetics which madame requires in ever increasing quantities."

Leon Chiris

With the very limited time at his disposal on this first trip after the war, Mr. Chiris has not been able to see as many of his friends in the trade as he should have liked, but from those whom he has seen, he has gained the distinct impression that the interest in aromatic raw materials for which Grasse is famous is very great. Grasse, like all the rest of France, has suffered indescribable depreciation under the German occupation, and whereas property has not been destroyed through bombardment, the shortage of raw materials, particularly coal and solvents, has been such as to materially diminish the productive capacity of the perfumery raw materials industry, not only during the war, but for some time to come. The fact that several million Frenchmen were deported from their homes and occupations has deprived Grasse, like other industries, of manpower necessary for cultivation of the fields and for the manufacturing activities in which they were normally engaged. Many of these deportees are now returning home, but their physical condition under German overlordship is such that their physical and moral rehabilitation will take a considerable time before they can again become useful and productive citizens. These are important factors in the rehabilitation of our industry.

In spite of the difficulties which will confront the Chiris enterprises—and Mr. Chiris has only touched on a few of those difficulties in this brief interview — the Chiris laboratories and factories are intact, and they have been able to retain their key personnel and experts throughout the whole war. Therefore, production is already beginning to increase, though only gradually.

During the course of his visit in New York, Mr. Chiris is reorganizing the activities of Antoine Chiris Co., Inc., and in this connection announces that Louis Rapin, who, for more than 40 years, has been intimately associated with the Chiris companies, and who, for the past 15 years, has been president of the New York company, has decided to retire

PLYMOUTH WAXES *For* CREAMS

This Spermaceti should not be confused with inferior hydrogenated sperm oils which are sometimes offered as Spermaceti The Plymouth Brand is the finest which can be produced and is produced from Genuine Sperm Oil by the cold pressing method. It is a very white crystalline wax containing no free oil, has a very low Iodine number and is free of any offensive odors.

PLYMOUTH Ozokerites

We offer two grades One is the highest quality obtainable, 76°-78° C melting point and the other grade lower in price and of lower melting point 66°-68° C. Both are guaranteed 100% Pure Bleached Ozokerites.

PLYMOUTH Sun-bleached White Beeswax U. S. P.

This is guaranteed to be a 100% Pure Beeswax and sun-bleached It is refined by the centrifugal method which removes all and every trace of foreign matter. We will gladly send samples.

PLYMOUTH White Cirine Wax

A special grade of White Ceresin Wax prepared for the cosmetic trade Absolutely white and odorless. It has a melting point corresponding to that of Beeswax so that in using it in connection with Beeswax in cream any "lumpiness" is avoided. Its use will also produce a very glossy cream.

We offer all grades of the U S.P fully-refined Paraffin Waxes.

A COMPLETE LINE OF COSMETIC RAW MATERIALS

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Hypophosphates • Medicinal Oxalates • Hexamethylenetetramine • Paraformaldehyde • Parahydroxybenzoates • Penicillin • Pentaerythritols • Salicylates

from active commercial life, and as president of the American company. Mr. Rapin, however, has accepted the position of adviser to the Board of Directors, and will continue to give the company the benefit of his experience.

Mr. Chiris announces further that Frederick E. Shoninger, an American citizen, who has been director of the Chiris enterprises for the past six years in the British Empire, where he is Managing Director of Antoine Chiris, Ltd., will combine these activities in the future with those of president of the American company. Both Mr. Chiris and Mr. Shoninger will return to the United States for a lengthy visit immediately after the end of this year.

Construction Is Under Way On New Shulton Plant

The first pouring of concrete took place last month on the new plant under construction for Shulton, Inc., New York, N. Y.

Plans call for a two-story building with a center portion of three stories, to face Route No. 6 at Clifton, N. J. The new structure will be 420 feet long, on a building site of 28 acres. The grounds will have an athletic field and a large parking space.

The interior of the building has been designed for the manufacturing processes used in producing Shulton merchandise. The processes include the manufacture of chemical products such as soaps, lotions, compounded perfume oils, etc.; the manufacture of cardboard containers, including printing; the manufacture and decoration of plastic containers; the packaging of all products into various sets and finished goods.

Approximately 1,000 people will be employed in the new plant. The company plans to occupy the building July 1, 1946.

William L. Schultz, president of Shulton, Inc., breaking ground for the new Shulton plant at Clifton, New Jersey.

CDCA Holds Quiz Luncheon

The Chicago Drug and Chemical Assn. offered something novel at its luncheon held Sept. 27, in Chicago, Ill.

The feature of the luncheon was the radio program "Quiz of Two Cities," and the participants were the C. D. C. A. and the St. Louis Drug & Chemical group.

JOHN POWELL & CO., INC.

Producers of Fine Soaps-Toilet Soap Specialties

CHIP, FLAKE, GROUND, POWDERED, MILLED

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SOAP BUYERS!

POWCO BRAND—the standardized, airfloated Neutral Soap is the choice of manufacturers of leading brands of dentifrices and toiletries because it brings *better quality at a saving.*

Large production facilities make it possible to control the quality of Powco Brand and offer an economical, standardized, *superior* soap adaptable to many formulas. As soon as special imported oils are again available we will again offer a wider selection of titres, etc.

Consider POWCO BRAND—and make it your choice for a better quality, more economical, pulverized Neutral Soap.

JOHN POWELL & CO.
One Park Ave. New York 16, N. Y.

MAN-MADE METEORS OF JUSTICE

"Mine eyes have seen the Glory of the Coming of the Lord:
He is trampling out the vintage, where his grapes of wrath are stored;
He hath loosed the fateful LIGHTNING of His terrible swift sword.
His truth is marching on."
(Battle Hymn of the Republic)
Julia Ward Howe

For mere vengeance I would do nothing. This Nation is too great to look for mere revenge. But for the Security of the Future, I would do everything. *James Garfield*

THIS ADVERTISEMENT
DEDICATED TO THE VALIANT

BIRD-MEN — U. S. AIR FORCE

SPARHAWK COMPANY
SPARKILL, NEW YORK

PEST CONTROL DEPARTMENT
RATS — RODENTS — PESTS

OH! WRITE OF ME NOT "DIED IN BITTER PAIN,"
BUT "EMIGRATED TO ANOTHER STAR"
HELEN HUNT JACKSON

Photograph courtesy American Air Corps, U. S. Army

SAME OBJECTIVE

... different results

Grinding methods of years gone by, especially the one used by cave men, were crude. But, they served the purpose at that time.

Today, grinding done by Whittaker, has become an exact science. It is more than merely pulverizing cosmetic ingredients to a specified micron size. As an instance, it involves a comprehensive study of the crystalline structure of various grades of the same mineral. This results in a better understanding of the characteristic properties and how they will be affected by grinding.

As a benefit of this research at Whittaker, you get the proper grade of cosmetic ingredients, ground to the proper maximum micron size, which will aid in bettering the over-all quality of your cosmetics.

Albatex • Stearates • Purified Cosmetic Titanium • Colloidal Kaolin
Magnesium Carbonate • Precipitated Chalk • Colors • Talc

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NEW ORLEANS — Edward W. Ortenbach
PHILADELPHIA — Peltz & Company
TORONTO & MONTREAL — Richardson Agencies, Ltd.
CLEVELAND — Palmer Supplies Co., formerly Palmer Schuster Co.

NBBMA Holds Fourth Annual Convention

The fourth annual convention of the National Beauty and Barber Manufacturers' Assn. was held in Atlantic City, N. J., Sept. 28 and 29. More than 100 members attended.

Edward J. Beck was elected president. He succeeds Jule Gordon. Other officers elected were: first vice-president, Milton Breslauer; second vice-president, Roy S. Bain; third vice-president, Phil D. Spaeth; fourth vice-president, William H. H. Davis; fifth vice-president, Raymond E. Lee; secretary, Joseph A. Gallagher, and treasurer, Harold F. Bertrand.

Boston BIMS Hold Last Outing of the Season

The BIMS of Boston held their last outing of the 1945 season Sept. 26 at the Nashua Country Club, which is located in the foothills of the beautiful New Hampshire White Mountains.

The attendance was the largest in the history of the Boston organization, and it was unanimously agreed that the peak of enjoyment was attained.

The membership of the Boston BIMS has increased by more than 100 per cent since Pete Niles, manager of the New England branch of Fritzsche Brothers, Inc., took over the chairmanship in 1943. He and his Executive Committee have worked tirelessly for the progress of the BIMS.

Two grand prizes went to Robert E. Marsh and David O'Connell. E. E. Aldrich and Joseph Knowles captured low gross scores. Low net was won by E. P. Williams.

Centflor Mfg. Co. Appointed Representative for P. A. Bompard

P. A. Bompard, successor to the old house of Jules Blanc and J. Mistral, Antibes, A. M., France has appointed the Centflor Manufacturing Co., 6 Varick St., New York, N. Y., as sole representative in the United States, Canada and South America, for its natural floral absolutes and concretes and other floral products. The Centflor Manufacturing Co. is directed by Dr. Arnold Beller and William O. Bruell, both of whom have been associated with the trade for many years.

ADCAM Holds Season's Final Golf Meet

The Allied Drug & Cosmetic Assn. of Michigan met on September 25, at the Birmingham Country Club, for its final golf match of the year. An award of cups to the winners of the season's play took place.

Baker Extract Holds Meeting of Sales Staff

The annual sales and advertising meeting of the Baker Extract Co., Springfield, Mass., took place in a three-day session on Sept. 20, 21 and 22, in Springfield.

Business sessions were held each day, and personal conferences were also held. Those who attended, enjoyed themselves at luncheons, dinners and outings.

President Edward Kronval explained a new pension plan which provides a life income for employees after retirement, and provides for dependents in case of death.

It was disclosed that 94 per cent of the stock of the Baker Extract Co., is owned by employees actually engaged in the conduct of the business.

BRIDGEPORT METAL CONTAINERS

VANITY CASES
ROUGE CASES
PASTE ROUGE CONTAINERS
LIPSTICK HOLDERS (All Types)
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Natural floral absolutes and concretes

V-day for perfumers. . . . Your worries of the past few trying years are over. . . . We are prepared to supply natural floral absolutes to meet your requirements. . . . Uniformly dependable quality guaranteed. Write for prices and full information.

ROSE JASMIN NEROLI ORANGE FLOWERS CASSIE

Sole representatives in North and South America

CENTFLOR MANUFACTURING CO.
6 VARICK STREET **NEW YORK 13, N. Y.**

TGA Scientific Section Meeting

The Toilet Goods Assn. has announced that a meeting of the Scientific Section will be held at the Hotel Biltmore, New York, N. Y., on Dec. 6.

Papers on matters of very considerable technical importance to manufacturers of perfumes, cosmetics, and other toilet preparations will be presented.

This will be the first meeting of the Scientific Section since the Spring of 1943, the Mid-Winter meeting last year and the Spring meeting of this year having been cancelled because of the war.

Old Associates Honor F. L. Bodman at Philadelphia Surprise Party

Fenimore L. Bodman, who has been active in the trade in the Philadelphia territory for forty years, was honored by a group of his old friends at an anniversary party given recently at the Philadelphia (Pa.) Art Alliance. The affair was a real old fashioned surprise party with friends gathering from distant points to attend and wish him many more years of happiness and continued success.

Guests were: Mrs. Fenimore L. Bodman, Mr. and Mrs. Warren H. Bodman, Capt. and Mrs. Philip C. Burnham, Jr.; George H. Kinsey, H. J. Baker & Bro.; Frederick Dahls, vice-president, and Robert S. Cochran, sales manager of the Benzol Products Co.; M. H. McAllister, vice-president, E. O. Frei, treasurer, J. H. Whittington and E. A. Froetscher of F. W. Berk & Co.; C. J. A. Fitzsimmons, president, and Arthur P. Hafner, treasurer of Orbis Products Corp.; A. J. Jewell, president, Schuylkill Chemical Co.; Bernhardt Mosler, president, Frankfort Grocery Co., and Mrs. Mosler, Miss Christine M. Mosler and Mr. and Mrs. Gerald C. Smith.

Bees Fly to France

An anonymous American donor arranged for the flight of 2024 bees to the Rohne Valley of France when he heard that lack of pollenization threatened the food supply in France, as well as the floral and perfume industries in that country.

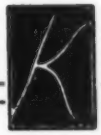
Sewell Corkran Now Located in New Offices at 50 E. 42nd St., New York

Sewell H. Corkran, for many years representative of A. H. Wirz, Inc., Chester, Pa., and the E. N. Rowell Co., Batavia, N. Y., in the metropolitan territory is now located in attractive new offices at 50 E 42nd St., New York, N. Y., not far from his former offices at 30 E. 42nd St., where he was located for over 23 years. The telephone number is the same: MUrray Hill 2-3447.

Ali Baba Markets Cosmetics for Girls

A new firm, Ali Baba Corp., New York, N. Y., has been formed to cater to the young girl market. The new line, consisting of toilet water, bubble bath, hand and body lotion, shampoo, soap, pomade lipstick, sachets, dusting powder, and powder mitt, has been designed to reach the 5 to 15 age group.

The line will be marketed through department and drug stores. An extensive advertising campaign is being planned to introduce the line, which is called "Debuette."



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Leading cosmetic houses have discovered our knack of filling their requirements as they ought to be filled. We respectfully suggest that you see things as they are and let us submit convincing samples.

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Lipstick • Rouge • Eyeshadow • Bath Powder • Face Powder • Mascara, etc.

Otto Rose Substitute

A duplication which accurately captures the full Rose character. Same strength as the Natural Otto Rose at one-sixteenth the price. Give it the same tests as the Natural Otto Rose and note the similarity.

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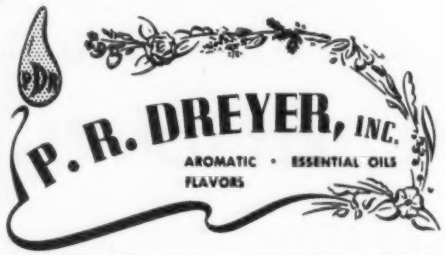

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KANSAS CITY
AND CITIES THROUGHOUT MIDDLEWEST

MEXICO CITY — EMILIO PAGUAGA
PRINCIPAL CITIES IN SOUTH AMERICA

Packaging Conference Held by American Management Assn.

A packaging conference was held under the auspices of the American Management Assn., at the Hotel New Yorker, New York, N. Y., on Sept. 18 and 19, under the chairmanship of Alvin E. Dodd.

Presentations at the conference were: The Road Forward by Christopher W. Browne; Combinations of Flexible Materials for Packaging by William F. Cullom; Postwar Packaging and the Designer by James Harley Nash; Present-Day Packaging Machinery Problems by C. A. Claus; Modern Materials Handling and Warehouse Methods by Commander Boyd R. Lewis; Accessory Functions of Adhesives by Dr. Frank C. Campins; Peacetime Possibilities of V and W Boxes, and Latest Developments in Army and Navy Specifications by H. T. Holbrook.

A most interesting feature of the meeting was a Packaging Problems Clinic in which specific questions, submitted in advance, were discussed by a panel consisting of E. H. Balkema, George N. Graf, F. S. Leinbach, Carl E. Schaeffer, J. H. Toulouse, Martin Ullman, and R. V. Wilson. The chairman of this panel was Albert W. Luhrs.

Chemical Industries Exposition to be Held in New York

Among the first of the postwar industrial expositions to be announced is the 20th Exposition of Chemical Industries, which is being organized for the week of Feb. 25 to March 2, in Grand Central Palace, New York, N. Y.

Many new products and processes, created by the war, are expected to come out. Many other new methods and products are emerging as by-products.

Wrisley Opens Recreation Center

Allen B. Wrisley Co., Chicago, Ill., has opened a new recreation center consisting of a cafeteria, lounge and meeting place for employee activities. Ultimately the current building consisting of a 6000 square foot area will be expanded to provide space for bowling alleys, locker rooms and dining and kitchen facilities.

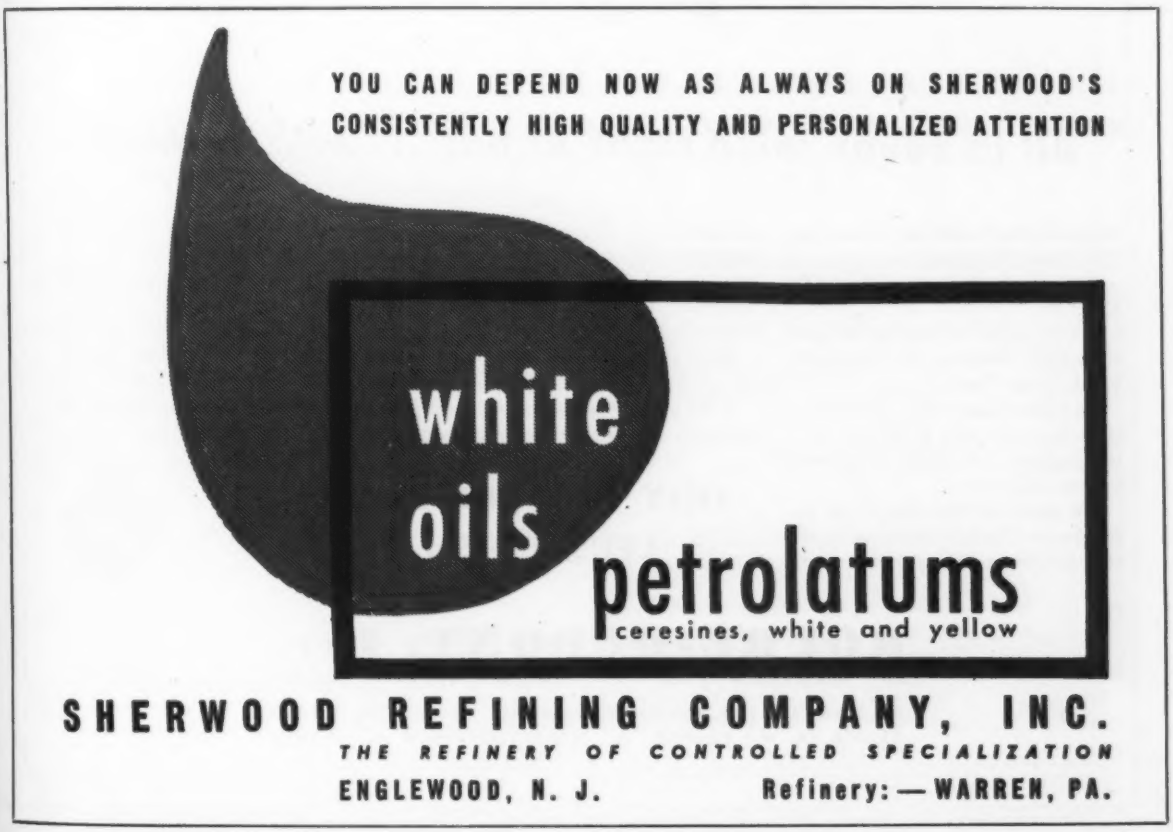
Potash Soap Manufacturers Report Production in 1944

The Potash Soap Division of the Association of American Soap and Glycerine Producers, Inc., announces that in 1944, 76 soap manufacturers, representing 69 per cent of the total number in this country who make potash soaps, manufactured 126,481,523 pounds of potash soaps of all kinds. This total consisted of 72,618,687 pounds of liquid soap (8,543,375 gallons); 43,571,894 pounds of paste, soft, jelly, base, or hard potash soaps; 7,337,022 pounds of dry cleaning soaps, and 2,953,920 pounds of soap not classified.

In the manufacture of these soaps, 33,173,049 pounds of vegetable oils, rosin, and fatty acids and 7,180,198 pounds of caustic potash (basis 88-92 per cent KOH) were consumed.

ACCCE to Hold Annual Meeting

The Association of Consulting Chemists and Chemical Engineers is to hold its annual meeting on October 23. The meeting will be held in the Architect's Club, New York, N. Y.



All in favor raise right hands . . . *with wallets*

Naturally we want our boys home. The sooner the better.

But how much are we willing to do about it?

Are we willing to pay for bringing them back? If we are, we'll buy *extra* Bonds in the Victory Loan.

And after these fellows get home—these men who have fought and won the toughest war America has ever known—what then?

We want to take care of the injured ones, of course. We want to see that the young fellows who went off to fight get a chance to finish their education. We want to see that there are jobs—plenty of decent jobs—for the men who've been doing the world's meanest job at army pay.

How much are we willing to do about that?

If we're really serious about wanting to see that our men get what they have so richly earned, we'll buy *extra* Bonds in the Victory Loan.

Now's the time. Let's have a show of hands—with wallets—to prove how much we really want to hear that old familiar step and that familiar voice yelling "It's *me!*" Let's prove, with pocketbooks, that we can do our job as well as they did theirs.

THEY FINISHED THEIR JOB—
LET'S FINISH OURS!

VICTORY LOAN

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GRASSE (A. M.) FRANCE • ARGENTEUIL (S. & O.) FRANCE

This is an official U. S. Treasury advertisement—prepared under auspices of Treasury Department and War Advertising Council

Procter & Gamble-Jergens Sponsor Brand Names Luncheon

A luncheon was given in Cincinnati, Ohio, on Sept. 25, where prominent executives of numerous Ohio companies took part in the ceremonies honoring brand names qualified to receive certificates.

These activities are sponsored by Brand Names Research Foundation, Inc., for distinguished American brand names which have been serving the American public continuously for 50 years, or more.

W. G. Werner of Procter & Gamble Co., and J. D. Nelson of the Andrew Jergens Co., both in Cincinnati, Ohio, sponsored the luncheon.

Bjorksten Laboratories Adds New Unit

Bjorksten Laboratories has leased 1000 square feet of space in a fireproof building at 13791 South Avenue "O," Chicago, Ill. This space is in addition to the quarters occupied at 185 North Wabash Ave., where the organization will continue to have its main office.

The expansion has been occasioned by the increase in business, particularly from cosmetic and pharmaceutical firms.

Merck & Co. Receives Fifth "E" Award

The Army-Navy "E" has been presented for the fifth time to the men and women of Merck & Co., Inc., at the three plants in Rahway, N. J., Philadelphia, Pa., and Elkton, Va.

DCAT to Hold Regular Annual Dinner

March, 1946, has been selected by the executive committee of the Drug, Chemical and Allied Trades Section of the New York Board of Trade as the date for its next annual dinner.

Elizabeth Arden Introduces a Cake Make-up

Elizabeth Arden, New York, N. Y., introduced a new cake make-up, "Pat-A-Kake," at a cocktail and fashion party on Sept. 19.

The Elizabeth Arden organization was represented by: Miss Arden, Madame Henri deMaublanc, L. T. Ridler, O. A. Mooney, and others.

Fats and Oils Picture Improved

The end of the war with Japan and cutbacks in military demand have substantially improved the United States fats and oils picture for civilian consumers, but these products will be among the last freed from all Government restrictions, according to an article appearing in the October issue of *Domestic Commerce*.

Charles E. Lund, Chief of the Fats and Oils Unit, Bureau of Foreign and Domestic Commerce, the author, points out that V-J Day brought about a complete reversal of previous estimates that there would be no significant improvement in the United States civilian fat situation prior to mid-summer 1946.

Philadelphia College Enrolls Large Freshman Class

The largest freshman class in a number of years enrolled at the Philadelphia College of Pharmacy and Science on Sept. 20. 100 matriculants in pharmacy reported, and there were additional students majoring in chemistry, bacteriology and biology.

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Fine Aromatic Chemicals

Essential Oils Specialties

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MARKET REPORT

Decline in Menthol Market Continues

WHILE the demand for essential oils that go into perfumes, cosmetics, pharmaceuticals, and proprietaries, shows signs of improving in anticipation of the coming year-end holidays, and the approach of the winter season, little improvement is anticipated in the movement of raw materials to confectioners or soft drink manufacturers over the closing months of the year because of the continued tight supply of sugar. The quantity of confections available in the final quarter of 1945 and in the opening months of 1946 will be determined by the availability of raw materials and the general economic situation.

Confectioners, chocolate and chewing gum manufacturers will get only 50 per cent of their 1941 sugar base in the final months of the year, but it seems reasonable to hope for a slight increase of sugar in the first quarter of next year, and another slight advance in the second quarter of 1946 as new Cuban sugar becomes available.

PEPPERMINT PRICES FALL

Peppermint oil, which normally enjoys a heavy demand from confectioners, has turned easier partly because of the unfavorable outlook regarding future outlets and also because of the increasing amount of oil coming upon the market from distillation of the new crop. Spot prices have already fallen from the high level prevailing a month ago, but there remains a strong possibility of Great Britain coming into the market. In normal times Great Britain purchased over 50 per cent of our production of peppermint oil. Although details have not been received, spearmint has thus far failed to show any signs of weakness, but current prices on the latter are regarded as well above normal.

Among the aromatic chemicals, Brazilian menthol has shown a further substantial decline in recent weeks and indications point to a freer supply of benzyl compounds. Availability of raw material is much greater, and a return to a fairly normal market of supply and price is generally expected. Possibility of an early increase in the supply of bois de rose oil should be reflected in such articles as linalool and linalyl acetate.

MENTHOL MARKET DECLINE

The most spectacular price development in recent months took place in menthol. The latest price recorded at which menthol sales were made was $4 per pound, but it is probable that actual business has since been put through at figures lower than this. All efforts to stabilize the local market have been felt through speculative influences thus leaving the basic principals of a limited consuming demand and liberal stocks to hang over the market. Unless there appears a more constant or urgent consuming demand, the market will continue to decline. Estimates place last year's production in Brazil at nearly three hundred tons whereas annual consumption in the United States averages about 200 to 250 tons. There are no details concerning the available supply of menthol in China or Japan. Inflationary developments, it is explained, may prohibit the importation of menthol from the Far East at below $4 per pound but some trade factors maintain that in view of China's need for American dollars they would not be surprised that goods, if available, will be offered here at below pre-war levels. Whatever menthol that will be consumed in the United States has already been placed in the form of manufactured products, and from all reports a fairly substantial carryover will be probably noted in Brazil.

Manufacture of certain basic chemicals was seriously threatened over the past month because of a serious delay in shipments of both soda ash and caustic soda caused by strikes. For a time it was believed that both carbonate and caustic potash would prove easier to obtain but because of labor difficulties both articles remained in a fairly tight supply position.

Although principal sellers of gum tragacanth were inclined to be rather firm in their ideas regarding prices the market as a whole turned unsettled by the presence of several distressed parcels of ribbon. After displaying a rather soft tone, gum arabic turned firmer despite the arrival of over a thousand tons from Port Sudan. The upward trend was attributed to higher shipping prices from origin. A good size tonnage is available in outside hands, however, and unless domestic demand improves, the local market may again turn easier.

FATS FOR HOUSEHOLD SOAP

Increase in the allotments of fats for household soap as announced here by the War Food Administration will, according to estimates in the trade, provide an additional glycerin production of between 8,000,000 to 10,000,000 pounds over the final quarter of the year. Generally there is a steady demand for glycerin. A good movement of supplies has been noted for explosives and indications seem to point to a heavier buying movement for the account of the protective coating, cosmetic and pharmaceutical trades. Some moderate parcels of crude have been arriving from South America and there remains the possibility of the million pounds, purchased early this year, coming into this market.

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U.S.I. CHEMICAL NEWS

October ★ A Monthly Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1945

New Alkyd Resin for High-Gloss Baking Enamels

S & W Aroplaz 906 Is Especially Good for Whites

The first of a new line of postwar alkyd resins, S. & W. Aroplaz 906, is now being produced in major quantities for civilian applications, according to a recent announcement by U. S. I. Designed for use with either the ureas or melamines in bake coatings, or in nitrocellulose lacquers, particularly where extreme hardness and good cold-check resistance is desired, this new development is reported to be superior to pre-war alkyds.

Aroplaz 906 facilitates the production of finishes having maximum color retention. It is especially suitable for use in white, domestic-appliance finishes, such as refrigerator, stove and washing-machine enamels. It imparts high gloss characteristics and produces finishes of exceptional hardness and toughness. These finishes have excellent resistance to abrasion, water, alkalis, fats and oils.

Supplies of this new resin are not subject to restriction and are fully available for any application. Samples and additional data may be had on request.

SPECIFICATIONS	
Solution (Xylol with trace of Butanol)	49-51%
Viscosity (G.H.)	P-U
Acid Number (solvent free resin)	6-10
Color (G.H. 1933)	3-5
Wt/gallon at 25° C	8.25-8.35 lbs.

Ether, Acetone Extract Potent New Germicide

Actinomycin A, a powerful germicide found effective in dilutions as attenuated as one part in one hundred million, is particularly effective in inhibiting the growth of gram-positive bacteria.

A recent patent covers a method of extraction from a micro-organism found in soil. The method consists of extracting the culture with ethyl ether or acetone. The solvent is then evaporated, leaving a solid substance which contains Actinomycin A and Actinomycin B.

Indalone Business to Dodge & Olcott

In view of the widespread activities of Dodge & Olcott in the field of insecticides and allied products, U.S.I. has transferred its well known product, Indalone, to this subsidiary company. Indalone is now available for civilian use and all inquiries should be addressed to Dodge & Olcott, Inc., 180 Varick Street, New York, N. Y.

Most Resin Raw Materials Freed; New, Improved Products Appear

Alkyd Resins Now on Market or Under Development Offer Up to 33% Better Drying Rates, Durability and Other Characteristics

With almost breath-taking speed, after Japan surrendered, WPB lifted a majority of the controls on the raw materials used in synthetic resin manufacture and paved the way for the early introduction of many new alkyd resins. These new resins are destined to take great strides in capturing many markets that oleoresinous varnishes held, largely unchallenged, before the war. Although no revolutionary new alkyds have been developed during the war, many are available now, and more will be offered shortly, which are up to one-third better than their prewar counterparts — in speed of dry, durability, color retention, gloss retention and other performance characteristics. Equally important, many manufacturers of protective coatings and other resin-containing products have acquired new and invaluable "know-how" in the use of alkyds as a result of their government business, much of which was based on alkyd resins.

Emulsion paints and coatings have been experiencing a minor boom since before 1941. It is expected that new emulsion resins will shortly be announced which will enable the manufacturer to combine all the advantages of conventional coatings, such as good washability and waterproofness, excellent color retention and exterior durability. Here you see the colloid mill used in U.S.I.'s laboratory in the development of new emulsion resins.

Varnish Resins

Most of the prewar hard resins, the conventional modified phenolics and maleics used in oleoresinous varnish cooks, have, at least temporarily, become obsolete. Newer resins have been developed which are markedly superior in speed of bodying and speed of dry, especially, as now, when soft oils like linseed must be used. When low-cost tung oil is again available in quantity, however, the prewar resins can be expected to stage a comeback, since some types are superior when used with oils like tung.

Oils and Rosin Still Scarce

Despite the critical situation which existed on phthalic anhydride right up until V-J day, this chemical is now freely available. The same applies to phenols, formaldehyde, maleic anhydride, aromatic solvents, etc. However, there is a world-wide shortage of vegetable oils, both drying and non-drying, as a result of the critical need for these oils in food products. This shortage, and consequent gov-

(*Continued on next page*)

Stabilizes Bath Oils

Bath-scenting oils, formulated with alcohol, tend to separate in use, the oils floating to the surface of the bath water in globules. Addition of small quantities of substituted sorbitol or mannitol compounds to the solution, according to a British source, prevents this undesired separation.

Pyrimidines Prepared by Novel Process

Pyrimidines, particularly 2-substituted amino pyrimidine, an important intermediate in the preparation of 2-sulfanilamido pyrimidine, may be prepared in a new and better way, according to the claims made in a new patent assigned to one of the leading pharmaceutical laboratories.

Two methods are described. In the first, a guanidine salt, a beta-alkoxyacrolein acetal, absolute ethanol and hydrogen chloride are mixed under substantially anhydrous conditions. The solvent and excess acid are removed under vacuum, and the residue made strongly alkaline. The 2-amino pyrimidine is extracted with hot benzene.

The second method differs largely in the substitution of beta-ethoxyacrolein diethyl acetal for beta-alkoxyacrolein acetal.

By Ewing Galloway

Harvesting and handling resin- and turpentine-containing pine gum takes a lot of manhours. It takes about two weeks to fill this cup with the "blood" which the pine tree manufactures and sends down beneath the bark to heal the "wound" made by man. Then a new wound must be made.

ADVERTISEMENT—*This entire page is a paid advertisement.*

October ★ **U.S.I. CHEMICAL NEWS** ★ 1945

New Resins Appear

(Continued from preceding page)

ernment use-restrictions, seem likely to continue for at least a year.

As for rosin, little hope is seen for breaking the present shortage until April or May of next year, when the new crop starts coming in. Current production is low because of the serious shortage of manpower and the large amount of manual labor involved in tapping trees and gathering the gum. Even if more manpower were available, it would not be practical now to increase the crop because the flow of gum practically stops during November and does not resume until April. In view of this, and the lack of appreciable rosin inventories in the country, little improvement can be expected in the WPB use-limitation on rosin, which, as this is written, is 60 per cent of the base period. This obviously will continue to affect the use of rosin as such, or in the form of synthetic resins.

Natural Resin Situation

Congo gum is the only natural resin of big commercial importance that is available today. Moderate amounts are now being imported from Africa. Other natural resins, such as Damar, Manila and Batu, will probably not be available in quantity for six months or longer. After that, these resins should appear at prices which will make them attractive competitors of some synthetic resins. Further, it is likely that we will see these resins in an improved form — as purified, processed products which will be far more useful than prewar natural resins.

Substitutes with a Future

It was natural to assume that the substitute resins offered during the war would be inferior to the resins they were designed to replace. Such was not always the case. One resin, for example, which turned out to be superior in many respects to the original was S & W Aroplaz 1306. Offered by U.S.I. in 1943 as a civilian replacement for pure alkyd resins of the type used in architectural finishes, Aroplaz 1306 turned out to be almost the equal of the pure alkyd resin in color retention and durability, and far superior to it in initial gloss and gloss retention.

Although a few of these substitute resins may stay on the job, there is every reason to believe that as resin manufacturers apply their vast wartime experience to civilian business, there will be a steady flow of new products with steadily improving characteristics. S & W Aroplaz 906, described elsewhere in this issue of CHEMICAL NEWS, is a splendid example of the kind of progress expected.

New Halide Dispersing Agent for Photo Films

In a recent patent, a process for preparing amino cellulose compounds is described which is said to produce a high molecular weight amine which is water soluble, and in which the cellulose is not degraded.

Formerly, amino cellulose derivatives were prepared with harsh reagents such as caustic alkali. The result was degraded cellulose and a water-insoluble product, both characteristics being undesirable in the preparation of silver halide dispersing photographic emulsions.

In one method described in the patent, 46 parts of cellulose acetate-p-toluene sulfonate was mixed with 300 parts ethanolamine, and the mixture maintained at 50 C for three days. Nearly all the cellulose ester was reacted and dispersed in the ethanolamine. The dope was filtered and precipitated in an excess of absolute ethanol. This precipitate was leached with acetone, then extracted with acetone.

The product was found to be readily soluble in water, and to form an almost colorless, clear viscous dope.

Process Retards Fading of Rayon

Cellulose-acetate rayon fabrics, which are stored in places where coal gas is burned, exhibit a marked tendency to fade. This fading diminishes the value of the fabrics, particularly when it is bolted, as only the exposed edges fade, leaving an uneven color.

A British patent describes a treatment designed to minimize such fading. NN'-diphenylacetamidine is pebble-milled with water and a condensation product of beta-naphthalenesulphonic acid and formaldehyde. This dispersion is diluted with water or ethanol, and the cellulose-acetate rayon, dyed with 1:4:5:8-tetraamino-anthraquinone, is immersed in NN'-diphenylacetamidine dispersion.

When treated and untreated samples of fabric were exposed to the action of coal gas for ten hours the untreated sample was faded and dull, while the treated sample had not changed color appreciably.

TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

New type fabrics for use in clothing, as automobile upholstery, in hosiery, hats and so on, is promised by a new electrostatic coating process. USI **(No. 984)**

A dry ice liquefier, to transform solid carbon dioxide to the liquid form, is described as having five times the capacity of any other high-pressure liquefier, and to take full sized blocks, thus saving labor of crushing and evaporation losses. USI **(No. 985)**

A plasticizer extender, for use with cellulose acetate, is said to also improve the heat and light stability and the flexibility of ethylcellulose plastics. USI **(No. 986)**

Effective mildewproofing is claimed for very low concentrations of a patented organo-mercuric compound. It is specifically intended for bacteriostatic and fungistatic treatment of fabrics, paper, leather and similar products. **(No. 987)**
USI

More compact polarizing microscopes are announced for production within a short time by a leading producer of optical instruments. Changes include new type crystals, which permit the omission of the astigmatizing lens. **(No.988)**
USI

Soldering on aluminum, stainless steel and monel metal is said to be greatly facilitated by a new flux which breaks surface oxides, thus providing more permanent bonds. **(No. 989)**
USI

An insulating paint, designed to reflect light and heat from its bright aluminum surface, is offered for use on roofs. The asphalt content of this paint is said to give it a high degree of water resistance. USI **(No. 990)**

A plastic upholstery material is claimed to be resistant to moisture, perspiration, crack, wear, acid and alkali, and to be washable. A variety of colors and finishes is available. **(No. 991)**
USI

Metallized glass, which gives a luxurious effect to bottles and similar containers, is suggested as being of particular interest to consumer-goods manufacturers who want to improve the appearance of their packages. **(No. 992)**
USI

A refractory cement, for setting and repairing fire brick, comes in powder form, is thin-mixed on the job, and is described as withstanding high temperatures, as going from 20 to 30 per cent farther, and as being storable without deterioration. USI **(No. 993)**

A new adhesive, used to adhere acetate sheeting to paper surfaces, is described as a cold water, flexible glue that forms a bond so tight the paper surface will tear before the adhesive separates. USI **(No. 994)**

Synthetic benzoin, announced as equal to the natural product, and up to 100% pure, is offered in commercial quantities. **(No. 995)**
USI

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Ethyl Chloroformate
Ethyl Formate

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Acetoacet-ortho-anisidide
Acetoacet-ortho-chloranilide
Acetoacet-ortho-toluidide
Acetoacet-para-chloranilide
Ethyl Acetoacetate
Ethyl Benzoylacetate
Ethyl Sodium Oxalacetate
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FEED CONCENTRATES
*Curbay B-G
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S&W Congo Gums—raw, fused & esterified
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S&W *Arofene—pure phenolics
S&W *Arochem—modified types
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Almond Bit, per lb.	3.50@	4.00
F. P. A.	5.00@	5.50
Sweet True	1.25@	1.50
Apricot Kernel	.50	Nom'l
Amber, rectified	2.25	Nom'l
Angelica Root	125.00@	150.00
Anise, U. S. P.	4.00	Nom'l
Imitation	1.75@	2.10
Aspic (spike) Span.	2.85@	3.25
Avocado	1.05@	1.25
Bay	1.50@	1.75
Bergamot	9.50@	10.25
Artificial	4.00@	9.25
Birch, sweet	2.50@	5.00
Birchtar, crude	2.25	Nom'l
Birchtar, rectified	4.25	Nom'l
Bois de Rose	5.00	Nom'l
Cade, U. S. P.	.90@	1.20
Cajeput	3.00	Nom'l
Calamus	22.00@	25.00
Camphor "white," dom.	.25@	.30
Cananga, native	12.25@	12.75
Rectified	15.00@	16.25
Caraway	12.75@	16.00
Cardamon	18.00@	20.00
Cassia, rectified, U. S. P.	12.00	Nom'l
Imitation	3.75@	
Cedar leaf	1.10@	1.25
U. S. P.	2.65@	3.34
Cedar wood	1.00@	1.25
Celery	17.25@	20.00
Chamomile	150.00	Nom'l
Cinnamon bark oil	32.50@	35.00
Citronella, Ceylon	1.70@	1.85
Java	3.25	Nom'l
Cloves, Zanzibar	1.75@	1.80
Coriander	25.00@	28.50
Imitation	12.00@	14.00
Croton	4.25@	4.80
Cumin	9.00@	11.00
Dillseed	8.00	Nom'l
Erigeron	2.25@	5.00
Eucalyptus	1.25@	1.35
Fennel, Sweet	4.50	Nom'l
Geranium, Rose, Algerian	15.50@	17.00
Bourbon	16.50@	18.00
Turkish	5.50@	5.85
Ginger	17.50@	18.00
Guaiac (Wood)	4.00@	4.80
Hemlock	2.65@	3.34
Substitute	.55@	.60
Juniper Berry	9.00@	10.25
Juniper Wood, imitation	1.00@	1.25
Laurel	5.00	Nom'l
Lavandin	8.25	Nom'l
Lavender, French	16.50@	17.50
Lemon, Calif.	3.25@	
Lemongrass	2.40@	2.60
Limes, distilled	7.50@	8.00
Expressed	13.00@	15.00
Linaloe	4.00@	4.15
Lovage	95.00	Nom'l
Marjoram	7.25@	7.50
Neroli, Bigarde P.	300.00@	375.00
Petale, extra	265.00@	300.00
Olibanum	5.00@	5.75
Opopanax	30.00@	38.00
Orange, bitter	3.90@	3.95
Brazilian	1.50@	1.65
Calif., exp.	1.70@	2.00
Orris Root, abs. (oz.)	135.00@	
Artificial	36.00@	40.00
Pennyroyal, Amer.	3.50@	3.80
European	3.65@	3.85
Peppermint, natural	6.50@	6.75
Redistilled	6.85@	7.10
Petitgrain	2.25@	2.50
Pimiento Berry	7.00@	7.60
Pinus Sylvestris	4.25@	5.00
Pumillonis	4.25@	4.75
Rose, Bulgaria (oz.)	30.00@	40.00
Synthetic, lb.	45.00@	55.00
Rosemary, Spanish	1.45@	1.60
Sage	3.00@	3.50
Sage, Clary	25.00@	30.00
Sandalwood, N. F.	7.00@	7.25
Sassafras, natural	2.00@	2.15
Artificial	.90@	1.10
Snake root	12.00	Nom'l
Spearmint	4.00	Nom'l
Thyme, red	2.75@	3.00
White	3.05@	3.80
Valarian	40.00	Nom'l
Vetivert, Java	50.00	Nom'l
Bourbon	30.00@	32.00
Wintergreen	4.85@	8.50
Wormseed	5.25	Nom'l
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Bourbon	13.00@	20.00

(Continued on page 97)

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AROMATIC CHEMICALS MANUFACTURING DIVISION

(Continued from page 95)

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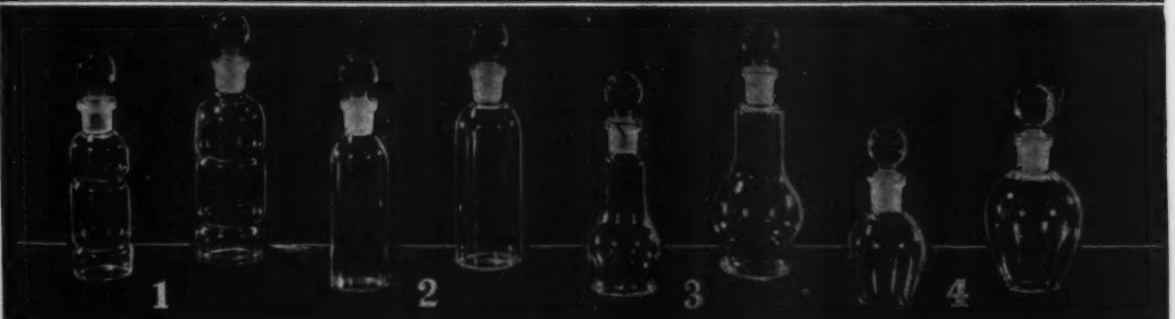
Bergamot	25.00	Nom'l
Grapefruit	65.00@	
Lavender	28.00	Nom'l
Lemon	45.00	Nom'l
Lime, ex.	80.00@	100.00
Distilled	60.00@	67.00
Orange sweet	65.00@	112.00
Peppermint	13.00@	13.50
Petitgrain	3.50@	3.75
Spearmint	5.00@	6.00

DERIVATIVES AND CHEMICALS

Acetaldehyde 50%	1.90@	2.75
Acetaphenone	1.70@	1.80
Alcohol C 8	7.50	Nom'l
C 9	14.00	Nom'l
C 10	7.75@	12.00
C 11	11.50	Nom'l
C 12	7.20@	8.50
Aldehyde C 8	22.50@	28.00
C 9	32.00	Nom'l
C 10	22.00@	29.00
C 11	22.00	Nom'l
C 12	25.00@	30.00
C 14 (so called)	9.25@	9.75
C 16 (so called)	7.65@	8.25
Amyl Acetate	.55@	.75
Amyl Butyrate	.90@	1.10
Amyl Cinnamate	4.50@	5.80
Amyl Cinnamate Aldehyde	2.75@	5.00
Amyl Formate	1.00@	1.50
Amyl Phenyl Acetate	3.75@	4.00
Amyl Salicylate	.80@	1.00
Amyl Valerate	2.10@	2.75
Anethol	2.80@	3.15
Anisic Aldehyde	3.35@	4.00
Benzophenone	1.15@	1.30
Benzyl Acetate	.75	Nom'l
Benzyl Alcohol	1.85	Nom'l
Benzyl Benzoate	1.10	Nom'l
Benzyl Butyrate	2.15	Nom'l
Benzyl Cinnamate	5.15	Nom'l
Benzyl Formate	2.50@	3.75
Benzyl-Iso-eugenol	10.25	Nom'l
Benzylidenacetone	2.25@	3.40
Borneol	1.80	Nom'l
Bornyl Acetate	2.25	Nom'l
Bromstyrol	6.25@	
Butyl Acetate	.18½@	.19
Cinnamic Acid	3.75@	4.50
Cinnamic Alcohol	3.65@	3.85
Cinnamic Aldehyde	2.65@	3.90
Cinnamyl Acetate	10.50@	12.00
Cinnamyl Butyrate	12.00@	14.00
Cinnamyl Formate	10.00@	13.00
Citral, C. P.	5.90@	6.35
Citronellol	6.25@	7.00
Citronellyl Acetate	8.60@	9.20
Coumarin	3.00@	3.50
Cuminic Aldehyde	8.00@	11.25
Diethylphthalate	.24	Nom'l
Dimethyl Anthranilate	4.55@	5.00
Ethyl Acetate	.25@	.35
Ethyl Anthranilate	5.50@	7.00
Ethyl Benzoate	.90@	1.15
Ethyl Butyrate	.75@	.90
Ethyl Cinnamate	3.50	Nom'l
Ethyl Formate	.75@	.95
Ethyl Propionate	.80	Nom'l
Ethyl Salicylate	.90@	1.00
Ethyl Vanillin	5.25@	6.00
Eucalyptol	2.65@	2.85
Eugenol	3.00@	3.50
Geraniol, dom.	5.50	Nom'l
Geranyl Acetate	3.50@	3.60
Geranyl Butyrate	8.50	Nom'l
Geranyl Formate	13.40	Nom'l
Heliotropin, dom.	6.00	Nom'l
Hydrotopic Aldehyde	15.00@	18.00
Hydroxycitronellal	8.50	Nom'l
Indol, C. P.	23.00@	26.50
Iso-borneol	1.10	Nom'l
Iso-butyl Acetate	1.25@	2.00
Iso-butyl Benzoate	1.50@	2.60
Iso-butyl Salicylate	2.70@	3.00
Iso-eugenol	4.00	Nom'l
Iso-safrol	3.00	Nom'l
Linalool	8.00@	8.75
Linalyl Acetate 90%	8.00@	8.50
Linalyl Anthranilate	15.00@	
Linalyl Benzoate	10.50@	
Linalyl Formate	9.25@	12.00
Menthol, Brazilian	4.50@	5.00
Methyl Acetophenone	1.80	Nom'l
Methyl Anthranilate	2.25@	2.40
Methyl Benzoate	.60@	1.00
Methyl Cellulose, f.o.b. shipping point	.60	Nom'l
Methyl Cinnamate	3.00	Nom'l
Methyl Eugenol	3.50@	6.75
Methyl Heptenone	3.50	Nom'l
Methyl Heptine Carbonate	45.00@	60.00
Methyl Iso-eugenol	5.85@	10.00
Methyl Octine Carbonate	24.00@	30.00
Methyl Paracresol	2.50	Nom'l
Methyl Phenylacetate	3.50@	4.00
Methyl Salicylate	.37@	.38
Musk Ambrette	4.25@	4.50
Ketone	4.35@	4.80
Xylene	1.65@	2.50
Neroline (ethyl ether)	2.00@	3.15
Paracresol Acetate	2.55@	3.00
Paracresol Methyl Ether	2.60@	2.85
Paracresol Phenyl-acetate	6.50@	8.50
Phenylacetaldehyde 50%	3.00	Nom'l
100%	5.00	Nom'l
Phenylacetic Acid	3.00@	3.75
Phenylethyl Acetate	2.50	Nom'l
Phenylethyl Alcohol	2.80@	3.00

(Continued on page 99)

Additional Creations of our New Distinctive Stoppered Bottles



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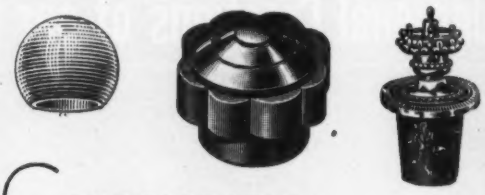

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(Continued from page 97)

Phenylethyl Anthranilate	16.00@	
Phenylethyl Butyrate	3.65@	4.00
Phenylethyl Propionate	3.45@	3.90
Phenyl Valerianate	16.00@	17.50
Phenylpropyl Acetate	10.00	Nom'l
Santalyl Acetate	20.00@	22.50
Scatol C. P. (oz.)	5.35@	6.00
Styrolyl Acetate	2.50@	3.00
Vanillin (clove oil)	2.60	Nom'l
(guaiacol)	2.35	Nom'l
Lignin	2.35	Nom'l
Vetivert Acetate	25.00	Nom'l
Violet Ketone Alpha	18.00	Nom'l
Beta	15.00	Nom'l
Methyl	6.50	Nom'l
Yara Yara (methyl ester)	2.00@	3.10

BEANS

Tonka Beans Surinam	.80@	.95
Angostura	1.50@	1.85
Vanilla Beans		
Mexican, whole	11.00@	
Mexican, cut	10.00@	
Bourbon	9.50@	10.50
Tahiti	3.25@	3.75

SUNDRIES AND DRUGS

Acetone	.07@	.07½
Almond meal	.25@	.35
Ambergris, ounce	12.00@	16.00
Balsam, Copaiba	1.00@	1.10
Peru	1.25@	1.35
Beeswax bleached, pure U. S. P.	.58	Nom'l
Yellow, refined	.53½	Nom'l
Bismuth, subnitrate	1.20@	1.22
Borax, crystals, carlot ton	55.50@	58.00
Boric Acid, U. S. P., cwt.	6.95@	7.55
Calamine	.18@	.20
Calcium, phosphate	.08@	.08¾
Phosphate, tri-basic	.09@	.10
Camphor, domestic	.69@	.84
Castoreum	13.00@	17.00
Cetyl Alcohol	1.75@	1.80
Chalk, precip.	.03½@	.06½
Cherry Laurel Water, jug, gal.	3.60@	4.00
Citric Acid	.21	Nom'l
Civet, ounce	18.00@	25.00
Clay, colloidal	.07@	.15
Cocoa, Butter, lump	.25½@	.27
Cyclohexanol (Hexalin)	.30@	.50
Fuller's Earth, ton	15.00@	33.00
Glycerin, C. P., drums	.17¼@	.17¾
Gum Arabic, white	.42@	.45
Amber	.11¾@	.12½
Powdered, U.S.P.	.18@	.21
Gum Benzoin, Siam	5.00	Nom'l
Sumatra	1.40	Nom'l
Gum Galbanum	1.10@	1.35
Gum Myrrh	.55	Nom'l
Henna, pwd.	.28@	.30
Kaolin	.05@	.07
Labdanum	3.25@	5.00
Lanolin, hydrous	.30@	.34
Anhydrous	.31@	.35
Magnesium, carbonate	.09@	.10¾
Stearate	.24@	.27
Musk, ounce	50.00	Nom'l
Olibanum, tears	.21@	.35
Siftings	.11½@	.13
Orange Flower Water, gal.	1.75@	2.25
Orris Root, Italian	.70@	.80
Paraffin	.06@	.09
Peroxide	1.10@	1.75
Petrolatum, white	.06¼@	.08½
Quince Seed	1.50@	1.75
Rice Starch	.10	Nom'l
Rose Leaves, red	3.45@	4.00
Rose Water, gal.	6.50@	8.00
Rosin, M. per cwt.	7.49@	
Salicylic Acid	.35@	.40
Saponin	2.00@	2.50
Silicate, 40°, drums, works, 100 pounds	.80@	1.20
Soap, neutral, white	.20@	.25
Sodium Carb. 58% light, 100 pounds	1.35@	2.35
Hydroxide, 76% solid, 100 pounds	2.60@	3.75
Spermaceti	.26@	.27
Stearate Zinc	.29@	.30
Styrax	1.00@	1.20
Tartaric Acid	.64	Nom'l
Tragacanth, No. 1	3.60@	3.85
Triethanolamine	.19½@	.20½
Violet Flowers	1.75@	2.00
Zinc Oxide, U. S. P. bbls.	.40½	Nom'l

OILS AND FATS

Castor No. 1, tanks	.13@	
Cocoanut, Manila Grade, c.i.f., tanks	.0835@	
Corn, crude, Midwest, mill, tanks	.12¾@	
Corn Oil, distilled, drums	16¼@	.16½
Cotton, crude, Southeast, tanks	.12¾@	
Grease, white	.08⅞@	
Lard	.15 22½@	
Lard Oil, common, No. 1 bbls.	.14@	
Palm Niger, drums	.0865	
Peanut, blchd., tanks	.1501@	
Red Oil, distilled, tons	.12@	
Stearic Acid Triple Pressed	.18⅝@	.18⅞
Double Pressed	.15⅞@	.16⅛
Tallow, acidless, barrels	.14¼@	
Tallow, N. Y. C., extra	.08⅝@	
Whale oil, refined	.1232	Nom'l

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The Chemical Nature of the Violet Odor

The discovery of the ionones on the mistaken formula for the orris ketone irone . . . The progress and developments in the preparation of violet odors . . . Startling relation of the ionones to the carotenoids and vitamin A

by EVERETT SAUL, Ph.D.

Chief Research Chemist, Felton Chemical Co.

Second Installment

The first installment was published in the preceding issue. A subsequent installment will appear in a forthcoming issue.

The pseudoionone hydrate, unlike the isomer was readily soluble in sodium bisulphite solution and hence might be isolated. The newly discovered chemical was reported as being a viscous oil which gradually crystallized, and had the constants: b.p. 166.8-169.8°/10.5 mm., n 21°/D 1.50647, sp.gr. about 1.0, m.p. about 80°, semicarbazone m.p. 228° (decomp.).

Merling and Welde[49] in 1909 published work on an attempted synthesis of irone on the basis that alpha- and beta-ionone and irone might be regarded as acetone condensation products of the three cyclocitrals on page 12.

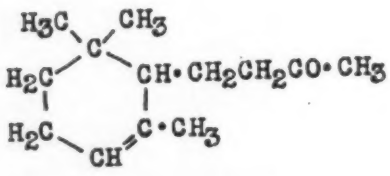
From a rather confusing mass of information, the series of reactions shown on page 12 seemed to represent the desired synthetic scheme.

By condensing (LIX) with acetone they obtained what was considered to be dl-irone. The small quantities of finished products, the inadequate evidence for the positions of the olefinic links, together with a general lack of supporting proof, make it appear that these authors' claim for the synthesis of Tiemann's "irone" is highly questionable. Ruzicka argued that what they had prepared was alpha-ionone.

Pereira[50] in 1910 reported the preparation of pseudoionone from citral and acetone, employing aluminum chloride as a catalyst. The conversion to ionone was conducted by heating with dilute sulphuric acid.

MOLECULAR REFRACTION STUDY

In 1910 Auwers and Eisenlohr[51] published a study of the molecular refraction and dispersion of hydrocarbons, aldehydes, ketones, acids and esters containing in their structure a pair of conjugated olefinic links. Among the compounds studied, were carefully purified irone, b.p. 144°/16 mm., d 20° 0.939, n 20°/D 1.50113; irene; ionone; alpha-ionone, b.p. 123-124°/11 mm., b.p. 134-136°/17 mm., d 20° 0.932, n 20°/D 1.4980; beta-ionone, b.p. 127-128.5°/10 mm., 134.6°/12 mm., 140.4°/16 mm., 150-151°/24 mm., d 15° 0.9488, d 20° 0.9442, n 17°/D 1.521; pseudoionone, b.p. 167-168°/23 mm., 170-171°/28 mm., d 20/4 0.8973, n 22.9°/D 1.5300. Table II below, lists the molecular refraction and molecular exaltation of the compounds just described.



(alpha-dihydroionone)
(LXI)

Table II

Showing the molecular refraction (R_D) and molecular exaltation (ER_D) of some "violet ketones" and hydrocarbon derivatives.

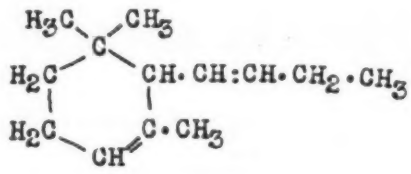
Substance	R_D (obs.)	R_D (calc.)	ER_D
Irone (VII)	60.42	59.23	1.29
Irene (VI)	57.06	56.43	0.63
Ionene (XVI)	57.30	56.43	0.87
Alpha-ionone (XLII)	60.75	59.23	1.52
Beta-ionone (XLIII)	61.94	59.11	2.83
Pseudoionone. (XVIII)	66.36	60.84	5.53

On the basis of the above data, Auwers and Eisenlohr concluded that they had evidence to support the structural formulae which had already been advocated by Tiemann at that time.

IONONE REPORTED IN NATURAL PRODUCT

In 1911, Kummert[52] extracted the flowers of Cheiranthus Cheiri L., and steam-distilled the extract. After vacuum distillation of the oil, he found fractions in the higher boiling portions which contained carbonyl compounds, as determined by treatment with semicarbazide hydrochloride. After decomposition of the semicarbazones with oxalic acid, he reported the odors of anisaldehyde and irone. However, the identity of these compounds was not established by any physical constants.

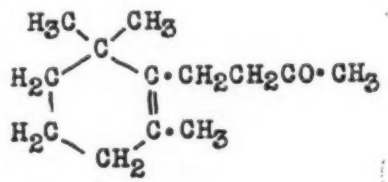
In 1912, Kizhner[53] reported for the first time the preparation and properties of alpha-ionane (LX).



(alpha-ionane)
(LX)

He prepared this product by boiling alpha-ionone with hydrazine and decomposing the resulting base with potassium hydroxide. The purified material was stated to have a turpentine-like odor and possessed the constants, b.p. 220-221°/747 mm., d 20/° 0.853, n 20/D 1.4784.

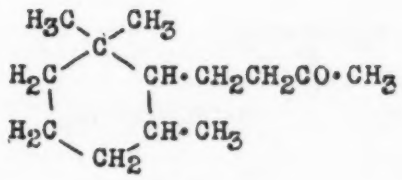
In 1912, Skita[54] in a study of hydrogenation using platinum as a catalyst, showed that the rate of hydrogen absorption by the ethylene linkage was increased when there were vicinal keto- or aldehyde-groups. Hydrogenation proved that the first two atoms absorbed, reduced the side chain olefinic link, yielding alpha-dihydroionone



(beta-dihydroionone)
(LXII)

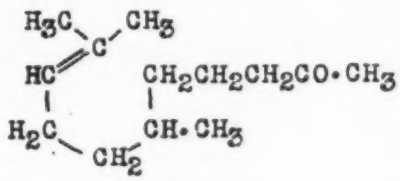
(LXI), b.p. 121-122°/14 mm., and beta-dihydroionone (LXII), b.p. 126-129°/12 mm.

Complete hydrogenation of the olefinic links in alpha- and beta-ionones yielded one tetrahydroionone (LXIII), b.p. 126-127°/13 mm., as would be expected.



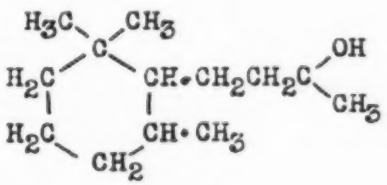
(tetrahydroionone)
(LXIII)

Pseudoionone was reduced to a tetrahydro-derivative (LXIV), b.p. 126-127°/14 mm.



(tetrahydropseudoionone)
(LXIV)

In 1915, Skita[55] also prepared hexahydroionone or tetrahydroionol (LXV), b.p. 142-143°/20 mm., acetate b.p. 131°/11 mm.



(tetrahydroionol)
(LXV)

All of these compounds were reported as having lost their value as perfume materials.

In 1915 a patent was granted to Schultz and Göttlemann[56], reporting the preparation of ionone from pseudoionone by employing organic acids or phenols as catalysts, at temperatures ranging from 150-180°. The claim was that superior yields were obtained by virtue of decreased resinification. Under these conditions, the chief product proved to be alpha-ionone.

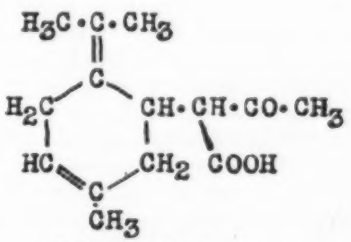
In 1916 Slack[57] made some observations on the commercial manufacture of ionone. He stated that the higher the raw material was in citral content, the more suitable it became for the preparation of ionone. The condensation of citral and acetone to form pseudoionone was best effected by using a proportion of 5 parts of acetone to 1 part of citral. The condensing agent should be in solution, otherwise superheating, caused by insoluble materials, produced tarry and resinous compounds which interfered with the production of a good ketone. The best results were obtained with 1 part of a 5 per cent solution of sodium ethylate in absolute alcohol to 2 parts of citral. The condensation was brought about at as low a temperature as possible. Immediately after the reaction was complete, the excess acetone was removed by washing with water, and any unchanged citral, eliminated by steam-distillation. The residual pseudoionone was converted to ionone by boiling 100 parts for 6 hours with 15 parts of concentrated sulphuric acid, 500 parts of glycerine and 500 parts of water. The resulting ionone should be rectified repeatedly to give a high grade product, the distillation being conducted as rapidly as possible to avoid resinification. The final product, he claimed, was greatly improved by passing through it a current of steam, followed by a current of air, for several hours.

In 1918 Knoevenagel[58] reported the preparation from alpha- and beta-isocitrylideneacetoacetic acids (LXVI) and (LXVII), of what he called alpha-isoionone (LXVIII), b.p. 122°/23 mm.,: sp.gr. 22/4 0.9500, n 20/D 1.5021, semicarbazone m.p. 205°, and beta-isoionone (LXIX), b.p. 113°/15 mm., semicarbazone m.p. 108°. The odor of these compounds did not resemble that of the ionones.

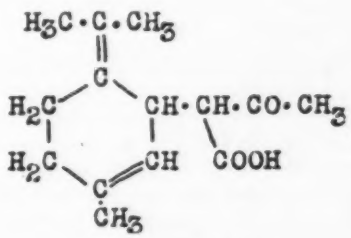
FURTHER WORK ON CHEMISTRY OF IRONE

Ruzicka was puzzled regarding the chemistry of irone and its structural formula. He had studied the report of the Merling and Welde synthesis, and remained unconvinced. For these reasons he began a series of researches attempting to elucidate the irone problem. At first Ruzicka[59] felt it important to prepare substances with olefinic links of the irone type and chose to investigate the polymethylcyclohexenones which could be converted to the aldehydes and ultimately condensed with acetone. He synthesized a number of such compounds which helped clarify for him their chemistry.

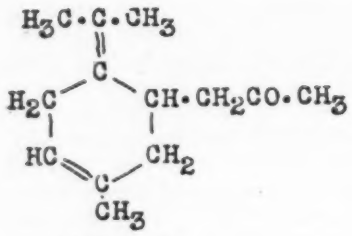
Ruzicka[60] pointed out that when Tiemann and Krüger attempted permanganate oxidation studies on irone, the degradation proceeded so far that they were unable to obtain any conclusive evidence of the structure of irone. Not that he quarreled with their lack of technique, for he was also unsuccessful in identifying any characteristic



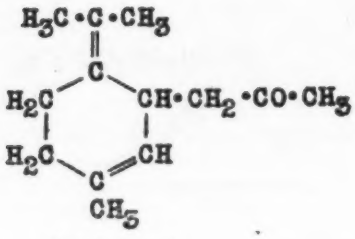
(alpha-isocyclocitral-
ideneacetoacetic acid)
(LXVI)



(beta-isocyclocitral-
ideneacetoacetic acid)
(LXVII)



(alpha-isoionone)
(LXVIII)



(beta-isoionone)
(LXIX)

degradation products by, for example ozonolysis. He now employed a new approach. He reduced irone, using platinum as a catalyst at ordinary temperatures and obtained a well-defined tetrahydroirone, b.p. 143-145°/13 mm., semicarbazone m.p. 202-203°. For the first time chemical evidence was at hand to prove the presence of two olefinic links in the irone molecule. Heretofore, the only testimony for the extent of unsaturation rested on the indirect data of molecular refractivity. Evidence for the two olefinic links in irene was inconclusive since heating with hydrogen iodide easily introduced unsaturation as in the conversion of thujone to isothujone and similar reactions.

According to the accepted formulae at that time for the ionones and irone, it was to be anticipated that the tetrahydro-derivatives would be, other than the optical activity, identical. Although Skita had already claimed that both alpha- and beta-ionones yielded the same tetrahydro-compound, Ruzicka criticised him for not having identified his products by means of crystalline derivatives. He therefore carefully prepared alpha-tetrahydroionone, b.p. 131-134°/16 mm., semicarbazone m.p. 183-184°, and beta-tetrahydroionone, b.p. 128-130°/14 mm., semicarbazone m.p. 183-184°. He showed that by mixed melting-points the tetrahydro-derivative from alpha- and beta-ionones was the same. Therefore, tetrahydroirone differed from the tetrahydroionones in physical properties, including the specific gravity and optical activity. Since optical isomerism does not imply differences in boiling-point, Ruzicka suggested that the variation in physical properties must mean the presence of cis-trans isomerism. He added, however, that the difference in boiling-point of cis-trans isomers rarely exceeded 10° and most isomers differed in the range of 4-8°. The problem was becoming more complex.

MANUFACTURE OF IONONES

In 1923 Lewinsohn[61] described the industrial manufacture of alpha- and beta-ionones. A mixture of equal parts of lemongrass oil, acetone and 10 per cent aqueous caustic solution was stirred for 72 hours in an iron vessel, the temperature maintained below 35°. At the end of the reaction time the aqueous phase was removed and the oily layer washed with water. The acetone was recovered and the crude pseudoionone distilled in vacuum, collecting the fractions boiling at 135-150°/5 mm. The yield was stated to be almost quantitative. Then 1 part of pseudoionone and 3 parts of 60 per cent sulphuric acid were each separately cooled to −8°, whereupon they were mixed. At 30° there was a sudden change in color of the reaction mixture and the latter was then rapidly heated to 42° and at once poured upon chopped ice. The acid layer was removed and extracted with benzene. The extract and crude ionone were bulked and at first washed with water and then dilute aqueous sodium carbonate solution. The crude product consisting primarily of alpha-ionone was distilled under a maximum pressure of 2-3 mm., alpha-ionone boiling at 118-125° and beta-ionone at 130-135°. Under good handling, there should be no unchanged pseudoionone left, and the yield of ionones should be about 70 per cent based on citral.

In 1924 Hibbert and Cannon[62] published an extensive study of the ionones. They attempted to prepare new homologues by the use of methyl phenyl, methyl propyl, diethyl and diisopropl ketones. The first two readily condensed with citral in the presence of sodium or sodium ethylate yielding pseudoionones which were readily cyclicised in acid media to the corresponding ionones. Since 85 per cent phosphoric acid was used for the conversion, presumably alpha-phenyl-ionone, b.p. 172-175°/4.5 mm., and alpha-ethylionone, b.p. 138-140°/8 mm. were formed. The former was a pale yellow oil having almost no violet odor, while the latter possessed the fragrance of the ionones. It was found, however, that ketones having no methyl group attached to the carbonyl, condensed difficultly or not at all with citral. This inertness, the authors suggest, might be anticipated from the lack of reactivity of such ketones toward reaction with benzaldehyde, sodium bisulphite, ammonia, etc.

PURIFICATION OF IONONES

The authors cautioned, that to obtain pure ionones, the citral must be purified by removal of citronellal, methyl heptenone, terpenes, etc., and pure pseudoionone must be chemically isolated prior to its cyclisation. Finding the patent procedures, as given, produced poor yields of pseudoionone, the authors used alcoholic sodium hydroxide as the condensing agent at a lower temperature. The yield was increased but the pseudoionone was quite impure, having a wide boiling-range. In unpublished work Hibbert had successfully employed sodium in the synthesis of acetaldol, and now decided to adopt the procedure. Good yields of pseudoionone were obtained; variations in the amounts of sodium failed to materially effect the yields, while augmenting the reaction temperature actually diminished them. However, the action of sodium seemed to be in no way superior to that of sodium ethylate. To 50 g. of citral and 200 g. of acetone cooled to −5 to −8°, was added 2.3 g. of sodium dissolved in 50 cc. of absolute alcohol, over a period of 10 minutes while stirring. The stirring was then continued for an additional 4 minutes at −5°, and the solution thereafter neutralized with an aqueous tartaric acid solution, washed and ultimately freed of excess

acetone by steam-distillation. The crude pseudoionone, purified by means of sodium bisulphite, yielded 55 per cent of pure material boiling at 145-150°/12 mm.

Hibbert and Cannon then proceeded to study the various factors involved in the conversion of pseudoionone to ionone, namely, the nature and concentration of acid, time, temperature, etc. It was found that the best yields of a mixture of ionones was obtained when 85 per cent phosphoric acid was employed and that as the ratio of acid to pseudoionone was increased and the reaction time decreased, the yields were improved. Tables III, IV and V, will serve to illustrate these observations.

Table III

Showing the results of the conversion of 20 g. pseudoionone to ionone using 85 per cent phosphoric acid as a catalyst at 30°

Exp.	Am't. of acid	Reaction time, hrs.	Boiling-range final product	Yield
1*	80 g.	3.0	95-120°/2.5 mm.	25%
2**	150 g.	0.5	125-135°/12 mm.	80%
3**	275 g.	0.33	126-131°/12 mm.	79%

*Pseudoionone purified by fractionation
**Pseudoionone purified by bisulphite method

Table IV

Showing the results of the conversion of rectified pseudoionone to ionone using various concentrations of sulphuric acid as a catalyst.

Exp.	% acid	Am't. of acid g.	Reaction time, hrs.	Reaction temp.°	Boiling-range final product	Yield
1	70	80	0.75	30	95-120°/2.5 mm.	40%
2	50	150*	0.50	18-20	pseudoionone unchanged	
3	70	100*	0.75	30	112-120°/4 mm.	60%
4	70	100	0.75	30	95-120°/2.5 mm. much resinification	40%
5	80	100	0.75	30	much resinification	30%
6	93	2.5**	5	100	112-122°/12 mm.	54%

*Plus 25 g. crystalline borax.
**Plus 100 g. water and 100 g. glycerine.

Table V

Showing the results of the conversion of 20 g. of bisulphite purified pseudoionone to ionone using sulphuric acid as a catalyst.

Exp.	% acid	Am't. of acid g.	Reaction time, hrs.	Reaction temp.°	Boiling-range final product	Yield
1	70	150	1	30	126-134°/12 mm.	65%
2	93	2.5*	5	reflux	128-138°/12 mm.	35%

*Plus 100 g. water and 100 g. glycerine.

In 1924, Ito[63] also described work that he had done on the best experimental conditions for the synthesis of ionone from citral and acetone. He found that when using sodium peroxide as a condensing agent, a 3-5 per cent concentration was most suitable, using twice as much acetone as citral in the reaction mixture. The optimum reaction time was 5 hours, but if more than 5 per cent sodium peroxide were used, the time of reaction should be accordingly shortened. The condensation began at temperatures ranging from 5-10° and 35-40° was the maximum optimum temperature. Ito claimed that the presence of a small amount of water in the acetone facilitated the reaction. The resulting pseudoionone was of such a quality that its purity might be calculated from a table of refractive indices. He obtained 60 parts of pure pseudoionone from 100 parts of pure citral. He reported that if aqueous alkali was used for the condensation of citral and acetone, 85-90 per cent yields were obtained. The optimum range of alkali concentration was from 4-6 per cent, using 3 parts of aqueous alkali solution and acetone to 1 part of citral. When neutral salts were added to the system the efficiency of condensation was increased to 90 per cent. In regard to the conversion of pseudoionone to ionone, 95-97 per cent phosphoric acid yielded 85-88 per cent. If the concentration was below 90 per cent, only alpha-ionone would be formed, whereas concentrations exceeding 90 per cent produced correspondingly more beta-ionone. When using 65-75 per cent sulphuric acid, ionone in yields of 87-90 per cent was obtained. Concentrations of sulphuric acid above 75 per cent produced mainly beta-ionone while concentrations below 65 per cent gave essentially alpha-ionone. Ito also outlined a method for the estimation of ionone, based on a gravimetric analysis of the semicarbazones.

While examining commercial samples of the concrete otto of Boronia megastigma (Nees) Penfold[64] reported the presence of beta-ionone. However, no confirmatory data were given. Two years later, another report appeared, this time by Sabetay[65] of the research laboratories of Houbigant in Paris. It appears that a sample of Boronia concrete had been received from Australia, and Sabetay after distillation of the oil, found fractions which possessed a characteristic ionone odor. These fractions yielded a semicarbazone m.p. 149° and a p-bromphenyl-hydrazone m.p. 120° which closely approximated the reported figures for the beta-ionone derivatives. It is admitted, however, that the original product might possibly have been sophisticated and it was hoped that a check investigation could be made on an authentic sample.

In 1928 Reclaire and Hendriksz[66] of Polak and Schwarz, proposed a modification of the hydroxylamine procedure for the determination of citronellal in Java citronella oil, as a means of assaying ionone. About 5 cc. of ionone were refluxed for 2 hours in a mixture consisting of 15 g. of hydroxylamine hydrochloride and 37.5 g. of water. To this was added a solution of 18 g. of potassium hydroxide in 37.5 g. of water. The liquid oxime was separated, washed and filtered at 100°. A determination of nitrogen was then made by Gunning's modification of the Kjeldahl method on a 1.5-2.0 g. sample. Two to three hours were necessary for digestion. The ionone was calculated from the following equation:

$$\text{Ionone} = 53.82a/(14-0.042a)$$

where a = cc. N/5 sulphuric acid required for 1 g. of oximated oil. Table VI shows their results on the assay of various ionones on the basis of the oximation procedure just described and on the basis of the bisulphite method.

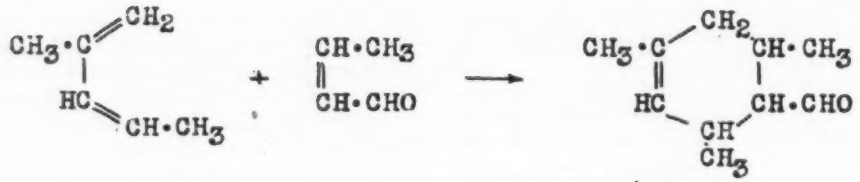
Table VI

Showing the results of the assay of various ionones on the basis of oximation and bisulphite procedures, according to Reclaire and Hendriksz.

Sample analysed	Ionone by oximation	Ionone by bisulphite
Ionone technical sp.gr. 15/15 0.9410 n 20/D 1.5008	86.6%	87.2%
Ionone pure sp.gr. 15/15 0.9396 n 20/D 1.5031	99.3%	98.7%
Alpha-ionone sp.gr. 15/15 0.9356 n 20/D 1.4992	97.6%	99.3%
Beta-ionone sp.gr. 15/15 0.9488 n 20/D 1.5200	98.1%	99.6%

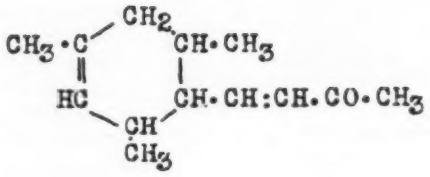
IONONE HOMOLOGUES BY DIELS-ALDER SYNTHESIS

In 1928 Diels and Alder[67] reported the discovery of a new synthetic method whereby dienes, provided they possessed true conjugation, were reacted with unsaturated



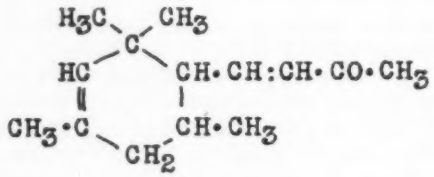
(LXX)

acetone



(LXXI)

aldehydes such as acrylic and crotonic. By means of this catalytically induced reaction, many derivatives of tetrahydrobenzaldehyde could be prepared. In a study of this



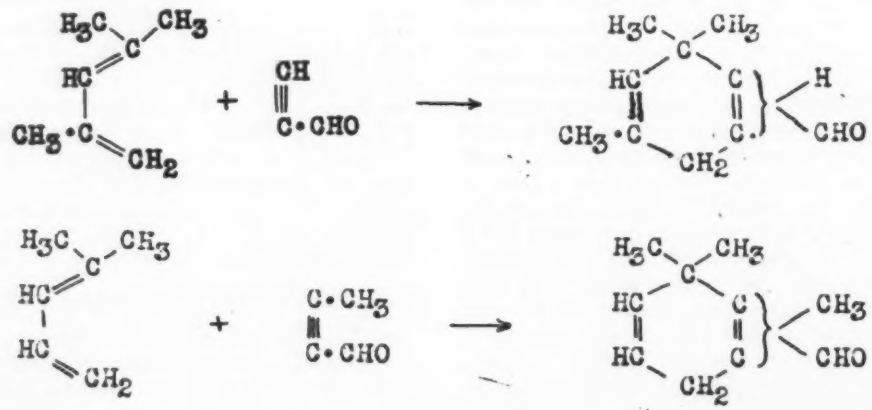
(LXXII)

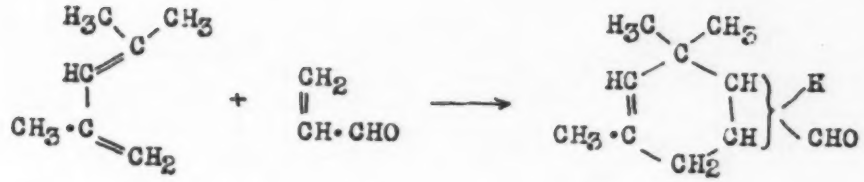
interesting synthetic procedure, Diels and Alder[68] reported the preparation of what they thought of as irone homologues. By heating 2-methyl-pentadiene-1,3 with crotonic aldehyde at 100° in an iron tube they obtained 2,4,6-trimethyl-cyclohexene-3-al-1 (LXX) which when condensed with acetone yielded a product (LXXI) which boiled at 138-139°/20 mm. and whose p-bromphenylhydrazone melted at 175°.

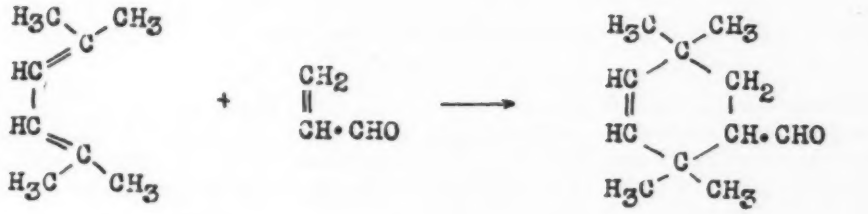
In the same way, starting with 1,1,3-butadiene-1,3 and crotonaldehyde, a product (LXXII) was finally obtained, whose semicarbazone melted at 155-156°.

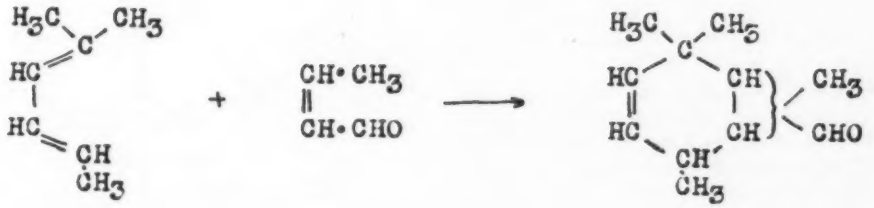
In 1929 M. Naef & Co.[69] patented the preparation of alkyl cyclohexene aldehydes, among other products, by the condensation of butadiene homologues with alpha-beta-unsaturated aldehydes. These condensations were brought about at temperatures ranging from 150-200° under pressure. The reader will of course recognize that the Diels-Alder synthesis is involved. Many interesting isomeric ionones could therefore be prepared by condensing homologues of acetone with the aldehydes so obtained. The following types of aldehydes were mentioned below:

It will be observed that during the synthesis, two isomeric forms are always produced, depending upon how the molecules of diene and aldehyde combine. If the only substituents of the butadiene molecule are on carbons 1 and 4, and the substituents on carbon 1 and 4 are the same, then only one isomer is possible as illustrated in example 4 above.

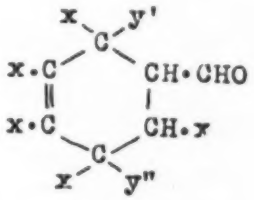








In 1930 a patent was issued to the I.G. Farbenindustrie Aktiengesellschaft[70] describing the preparation of ketones by condensing acetone with aldehydes formed by the Diels-Alder synthesis, of the type



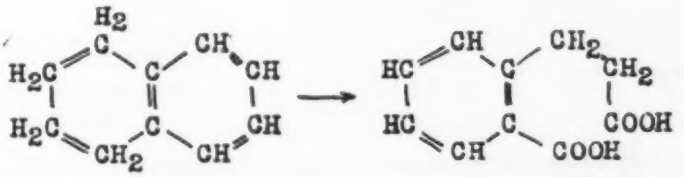
in which x and y″ represent hydrogen atoms or alkyl groups and in which a carbon to carbon linkage might exist, involving y′ and y″.

In 1930 Lingelsheim[71] discussed a phenomenon which had been observed for a long time, namely, the appearance of the odor of violets in human urine after inspiration of turpentine oil vapors.

It had already been known that when methyl ionone was prepared by the cyclisation of methylpseudoionone, four different isomers were obtained. The separation of these isomers by means of bisulphite did not, as it has been pointed out, yield pure products, Cherbuliez and Hegar[72] in 1932, reported the synthesis of the a and b forms by a more direct method. By means of a Reformatsky-like reaction they condensed citral with 1-brom-butanone-2 to give methylionone a and with 2-brom-butanone-3 to give methylionone b. The a isomer was stated to have the constants, b.p. 159-162°/12.5 mm., d 15° 0.9346, n 16.5°/D 1.4917, while the b isomer had the constants, b.p. 149-154°/13.5 mm., d 15° 0.9116, n 16.5°/D 1.5051. The p-bromphenylhydrazone of both forms melted at 156-158°. The yields were poor and because of the small amounts of material examined, the authors caution against the accuracy of the refractive index values, and those of the density, the latter displaying such great differences. No separation was made of the alpha- and beta-forms of the a and b isomers.

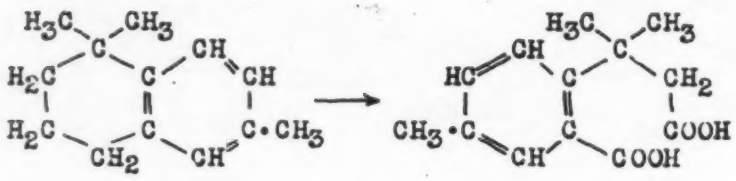
STRUCTURAL FORMULA OF IONONE FINALLY SETTLED

Bogert and Fourman[73] after reviewing the literature on ionene, concluded that a great deal of confusion existed regarding its structural formula. The evidence for the carbon skeleton of ionene was quite reliable but the posi-



(tetralin)
(LXXIII)

(o-carboxy-hydrocinnamic acid)
(LXXIV)



(ionene)
(XXI)

(XV)

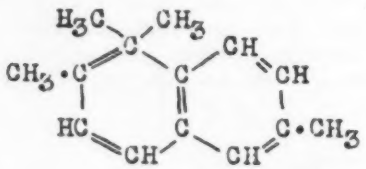
(according to Bogert and Fourman, 1933)

tion of the olefinic links was unsettled. Based on the work of Hibbert[74], the authors found that iodine instead of hydrogen iodide yielded more ionene from alpha- or beta-ionone and of a greater purity. A study of the oxidation products conformed the early work of Tiemann. When tetralin (LXXIII) or tetrahydro-naphthalene was oxidized in the cold with dilute acid permanganate solution, o-carboxy-hydrocinnamic acid (LXXIV) was obtained, analogous to the formation of (XV) when ionene (XXI) was similarly treated.

The ring scission was identical in each case, occurring at the same point, Bogert and Fourman therefore postulated the formation of ionene as a simple dehydration of beta-ionone, and, under the influence of iodine or hydrogen iodide a nuclear shift in the position of the olefinic link of alpha-ionone and subsequent dehydration. Finally, the authors found that ionene could be readily nitrated and sulphonated, reactions more in accord with the benzenoid structure of (XXI) and at variance with the Tiemann and Krüger molecule (XVI).

ORIGINAL IRONE FORMULA A MISTAKE

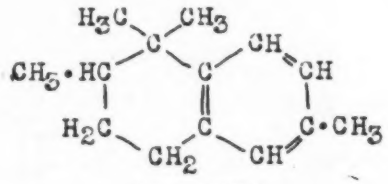
After degradation studies on irone and tetrahydroirone, Ruzicka, Seidel and Schinz[75] found products which appeared unequivocally to prove that irone contained not 13 but 14 carbon atoms. Therefore, they reinvestigated the elementary analysis of irone and its p-bromphenyl-hydrazone (m.p. 170-175°), phenylsemicarbazone (m.p. 178-179°), and thiosemicarbazone (m.p. 180-181°) derivatives. The analyses indicated beyond a doubt that Tiemann and Krüger had omitted a methylene group from the formula of irone. These results led naturally to a reexamination of the irene constitution. Ruzicka and Rudolph[76] had already dehydrogenated ionene with sulphur to 1,6-dimethyl-naphthalene. They treated irene with



(1, 2, 6-trimethylnaphthalene)
(LXXV)

selenium and obtained pure 1,2,6-trimethylnaphthalene (LXXV), evidence which supported the new formula (LXXVI) for irene.

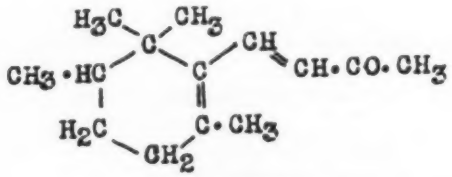
Formula (LXXVI) now for the first time satisfactorily explained the formulation of the degradation product, iregenontricarboxylic acid (III). It followed furthermore, that by the ionone-ionene analogy, formula (LXXVII)



(irene) (LXXVI)

(according to Ruzicka, Seidel & Schinz, 1933)

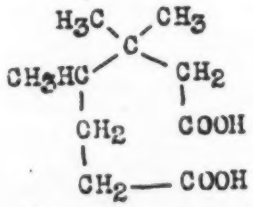
might be expected to obtain for irone, in which, however, the position of the nuclear olefinic link still remained uncertain.



(irone) (LXXVII)

(according to Ruzicka, Seidel & Schinz, 1933)

The irone problem was illusive and another stumbling block arose in the path of these investigators. On the basis of the ozonization products of irone and the permanganate-



(trimethylpimelic acid)
(LXXVIII)

chromate degradation residues of tetrahydroirone, a product, trimethylpimelic acid (LXXVIII) was isolated.

The formation of this product could only suggest a seven-

membered ring from which irene was formed by a pinacoline rearrangement perhaps by way of formula (LXXVII).

In 1933 Givaudan-Delawanna, Inc.,[77] of New York, patented the preparation of an ionone homologue by condensing allyl acetone (LXXIX) with citral and cyclisizing the allyl citrylidene acetone (LXXX) to allyl cyclocitrylidene acetone (LXXXI).

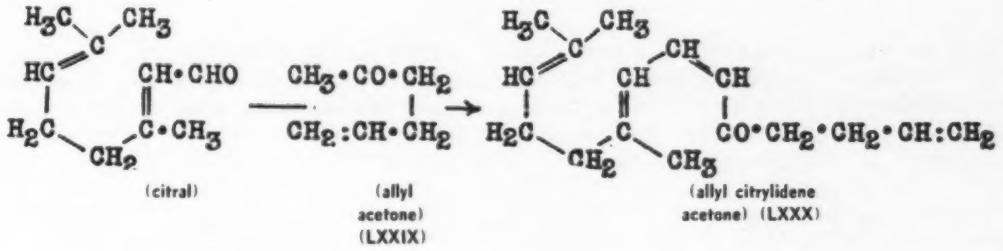
The pseudoionone homologue (LXXX) was reported to have the constants, b.p. 140-150°/3 mm., sp.gr. 0.9070, while the ionone homologue (LXXXI) had a boiling point of 130° at 3 mm.

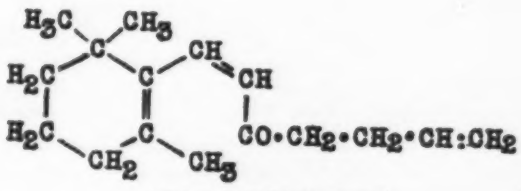
Table VII

Showing a comparison of the physical properties of synthetic ionene (I_a) and ionene formed by the action of iodine on alpha-ionone (I_b).

	Ionene (I_a)	Ionene (I_b)
Boiling-point	88-91°/4 mm.	108-112°/10 mm.
Sp.gr. 25/4	0.9320	0.9299
n 25/D	1.52167	1.52163
R_D (calc. 56.43)	56.82	57.08
ER_D	0.39	0.65
Dinitroionene m.p.	102°	102°
Sulphonamide m.p.	158-159°	158-159°

In 1935 Strain[79] described the preparation and proper-



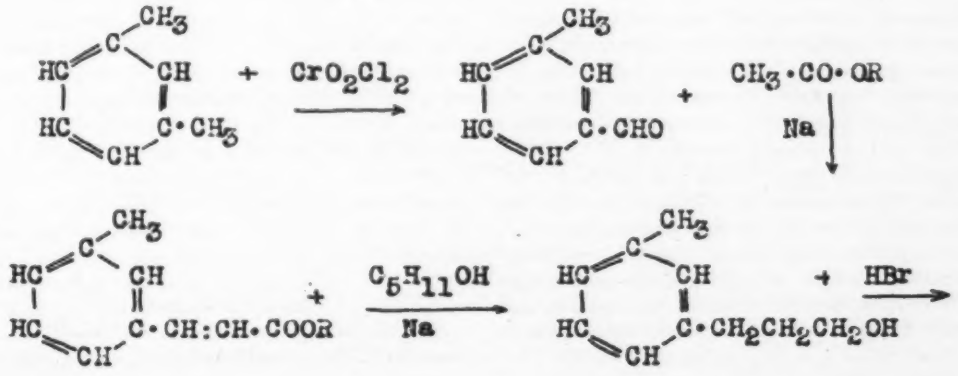


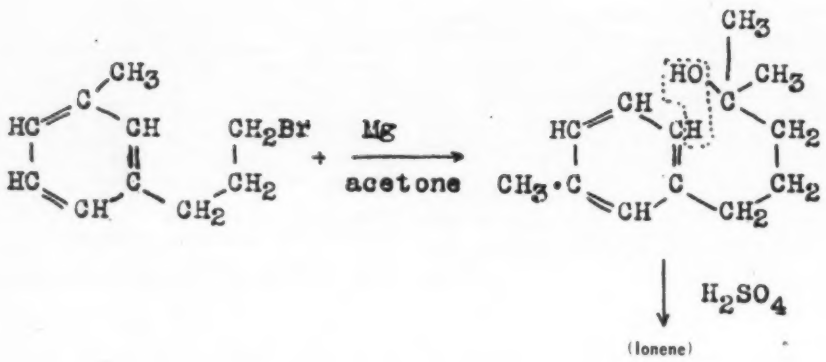
Bogert, Davidson and Apfelbaum[78] proved by synthesizing ionene, and showing that its physical and chemical properties were identical to the hydrocarbon prepared by dehydration of alpha-ionone, that it must be a 1,1,6-trimethyltetralin (XXI). Table VII shows a comparison of the properties of the synthetic ionene (I_a) and ionene (I_b) formed by the action of iodine on alpha-ionone.

The synthesis was conducted according to the following series of reactions:

ties of 3-nitro- and 2,4-dinitro-phenylhydrazones. The 3-nitro-phenylhydrazone of beta-ionone was reported as melting at 161-162.5° and 2,4-dinitro-phenylhydrazone of alpha-ionone at 147.5-149.5° and of beta-ionone at 128-129°.

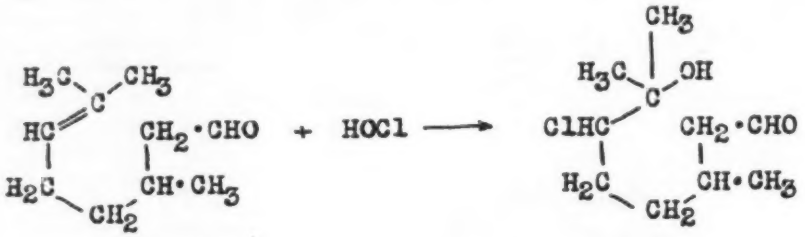
In 1935 Verley[80] announced that he had succeeded in synthesizing irone according to the structure assigned to it by Tiemann. The first step was the preparation of the chlorhydrin of citronellal (LXXXII).





The chlorhydrin was condensed with acetone in the usual manner and converted to the hydrochlor-irone (LXXXIII) by means of phosphoric acid in ether solution.

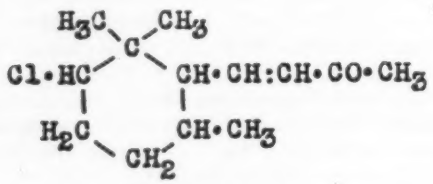
In 1935 du Pont de Nemours & Co.[82] patented the preparation of ionones by treating the pseudoionones with aqueous solutions of the iodide, bromide or chloride of



zinc, preferably at atmospheric pressure and at temperatures which were sufficiently elevated to cause the solution to reflux. For example, 100 parts by weight of zinc bromide were dissolved in 50 parts of water. Under vigorous agitation 50 parts of pseudoionone (b.p. 128-132°/5 mm., n 20° 1.5320) were added to the zinc bromide solution which had previously been heated to 100°. The temperature was increased to reflux (115°) over a period of 10 minutes and the solution was kept boiling under reflux. The progress of the isomerization might be followed by removing small samples from the reaction mass, washing free of zinc bromide and measuring the refractive index of the oil. In the course of 1 hour the refractive index had dropped from the original value to about 1.5160. After another half hour's time the index was about 1.5130 and thereafter it began to rise gradually, indicating that the isomerization was completed and that resinification was beginning to take place. After about 1.5 hour's time the reaction mass was cooled to room temperature. The oil separated on top of the zinc bromide solution and was easily removed. The zinc bromide solution remained unchanged and was used to isomerize fresh quantities of pseudionone. By fractional distillation under reduced pressure the crude product was freed from a small amount of terpenes and from some residue. The pure ionone obtained boiled at 75-85°/2.5 mm. and was a mixture of alpha- and beta-ionone in which the alpha-isomer slightly predominated. The yield was about 80 per cent.

In 1935 Köster[83], working in the laboratories of Haarmann and Reimer, published work that he had done on a

In order to eliminate a mole of hydrogen chloride and introduce an olefinic link in the appropriate position, the hydrochlor-irone was treated with alcoholic caustic. However, resinification was so extensive that extremely poor yields were obtained. Verley reported that if the phenyl-



hydrazone was first prepared, the removal of hydrogen chloride proceeded satisfactorily. After hydrolysis of the phenylhydrazone, a product was obtained having the following properties: b.p. 140°/12 mm., d 15° 0.940, α_D −21°. Natural irone according to Tiemann had an optical rotation of 40° and according to Schimmel, 33°. Verley expressed great surprise upon finding that Tiemann's formula for irone was erroneous according to Ruzicka, but seemed to be satisfied that his product had an odor value greatly superior to that of the ionones. Ruzicka and Brugger[81] commented later, that the rhodinal-chlorhydrin synthesis of "irone" by Verley could not be repeated and expressed their doubts whether he had ever prepared it in that way.

closer investigation of the four isomeric methylionones. When alpha-cyclocitral was condensed with methyl ethyl ketone, a mixture of alpha-a and b isomers was formed. As we have already seen these isomers were also the chief products derived from the cyclisation of the two methylpseudoionones by means of concentrated phosphoric acid. The alpha-b-isomer (XLVIII) yielded a semicarbazone m.p. 202° and the ketone regenerated from the latter, showed a boiling-point of 121-122°/9 mm., 4° lower than that of the alpha-a-isomer (XLVII), semicarbazone m.p. 146°, b.p. 125-126°/9 mm. This result appeared reasonable since experience had demonstrated that the isomer having a branched chain exhibited the lower boiling-point. Köster also argued that the branched chain ketone, which reacted more difficultly with bisulphite, might be expected to show a steric hindrance by virtue of the proximity of the methyl group and the olefinic side chain link. The distinction between the two ketones was made quite clear since alpha-methylionone b alone gave the iodoform reaction. At the same time beta-methylionone a, b.p. 133°/9 mm., semicarbazone m.p. 140°, showed the same characteristics in comparison with beta-methylionone b, b.p. 124-125°/9 mm., semicarbazone m.p. 182°, the beta-b-isomer again giving the iodoform reaction. In the trade, the alpha-a-isomer was known as Iraldein Alpha, the alpha-b-isomer as Iraldein Beta, the beta-a as Iraldein Gamma and the beta-b as Iraldein Delta. Köster[84] states that the two most valuable methylionones as perfume raw materials are the alpha- and beta-methylionones b. Sometimes the b-forms were referred to as isomethylionones.

IMPRESSIONS OF METHYL IONONE ODORS

Just after Köster had described the four methylionones which Haarmann and Reimer had offered the trade as the so-called pure Iraldeins, Jellinek[85] gave his impressions of their odor characteristics and application to perfume compositions. Alpha-methylionone a he described as flowery, fruity, like alpha-ionone; the beta-methylionone a as harsh, with a light Russian leather note, like beta-ionone; the alpha-methylionone a as heavy, harsh and woody; and the beta-methylionone b as powdery, heavy, with a slight animal note, like irone.

In 1936, according to a patent by Frisch[86], carbonyl compounds sensitive to alkalies and acids are obtainable in high yields from their bisulphite compounds when liberated by means of formaldehyde, acetaldehyde or acetone. For example, if a mixture of alpha- and beta-ionone sodium sulphonates was dissolved in water and an amount of formaldehyde equivalent to the ionones was added, when heated to 67°, only the beta-ionone separated out.

Georges Dupont[87] while attempting to reduce dihydroionones in the presence of Raney nickel in the cold at ordinary pressures, failed to accomplish his objective. He claimed that in the absence of another activating olefinic link, the hydrogenation of the unsaturation in trisubstituted compounds of the type RR'C:CH_2 and RR'C:CHR'' was impossible or extremely slow.

Palfray, Sabetay and Kandel[88] using nickel as a catalyst began investigations of the hydrogenation of the ionones. Hydrogenation of alpha-ionone (semicarbazone m.p. 171-172°) under an initial pressure of 150 Kg. at 65°, produced dihydro-alpha-ionone, b.p. 125°/4.5 mm., n 18/D 1.4780, d 18/4 0.9250. At 90°, two products were obtained: dihydro-alpha-ionol, b.p. 131.5°/14.5 mm., n 16/D 1.4830, d 16/4 0.9215, and dihydro-alpha-ionone. At temperatures ranging from 150-240°, hydrogenation of alpha-ionone gave only tetrahydroionol, b.p. 134.5°/15 mm., n 19/4 0.9087, allophanate m.p. 164°. Chromate oxidation of tetrahydroionol yielded tetrahydroionone, b.p. 127°/14 mm., n 15.5/D 1.4680, d 15.5/4 0.9140, semicarbazone m.p. 194-195°. In the course of these studies it was observed that alpha-ionol was never present as one of the reduction products, and had to be prepared by reducing alpha-ionone with aluminum isopropoxide.

REDUCTION PRODUCTS OF THE IONONES

Kandel[89] found that in the presence of nickel and hydrogen at 150 Kg. and 230-240°, beta-ionone was reduced to tetrahydroionol. At 290°, reduction was complete, resulting in tetrahydroionane, b.p. 95-96°/14 mm., n 19/D 1.4542, d 19/4 0.8371. The author also prepared the halides, ethers and esters of tetrahydroionol.

In 1937, Kandel[90] reported that at 150 Kg. and 65° alpha-ionone gave dihydro-alpha-ionone, b.p. 127°/15 mm., d 20/4 0.9269, n 20/D 1.4816, semicarbazone m.p. 169.5° (cor.). At 90° there resulted a mixture of dihydro-alpha-ionone and beta-dihydroionol, m.p. 39.5°, b.p. 132.5°/14 mm., n 19/D 1.4879, d 25/4 0.9197, allophanate m.p. 171.5°.

Kandel[91] feeling that some of his previous work was not reliable, repeated much of it, starting with more carefully purified material. Alpha-ionone, b.p. 127.5-128°/13 mm., n 20/D 1.4983, d 20/4 0.9331, 2,4-dinitrophenylhydrazone m.p. 147-148°, when hydrogenated at 150 Kg. and 65°, yielded 75 per cent of dihydro-alpha-ionone, b.p. 125°/14.5 mm., n 20/D 1.4772, d 20/4 0.9234. Under the same conditions beta-ionone, b.p. 131-132°/12 mm., n 20/D 1.5116, d 20/4 0.9430, 2,4-dinitrophenylhydrazone m.p. 126-127°, gave dihydro-beta-ionone, b.p. 127°/15 mm., n 20/D 1.4816, d 20/4 0.9269, semicarbazone m.p. 168.5°. At 90°, from alpha-ionone there was formed dihydro-alpha-ionol, b.p. 131.5°/14.5 mm., n 20/D 1.4814, d 20/4 0.9183, allophanate m.p. 155-156°, and some tetrahydroionol. At the same temperature beta-ionone gave dihydro-beta-ionol, m.p. 39.5°, b.p. 132.5°/14 mm., n 19/D 1.4879, d 25/4 0.9197, allophanate m.p. 171.5°. At 240°, tetrahydroionol, b.p. 134.5°/15 mm., d 20/4 0.9079, n 20/D 1.4717, allophanate m.p. 164°, was the chief product. By regulating the temperature, various reduction products might be obtained, the order of reduction being: the olefinic link of the side chain, the carbonyl, the nuclear olefinic link, and finally[92] dehydration took place. Again in order to obtain alpha- or beta-ionol, it became necessary to employ aluminum isopropoxide. Kandel also reported the preparation of dihydroionane as well as the esters of alpha- and beta-ionol. Hunger[93] claimed that all of the ionols and their homologues possess odors entirely uncharacteristic of ionone and pointed out that the carbonyl group in the side chain was essential.

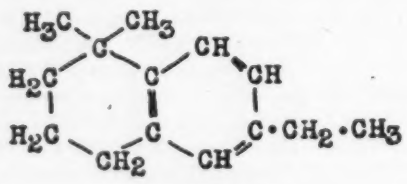
DEHYDROGENATION OF IONONES

It had been maintained by Palfray and Sabetay[94] that nickel prepared according to Raney or Sabatier-Senderens was an excellent catalyst for the dehydrogenation of alcohols at moderate temperatures. In 1939, Palfray, Sabetay and Halasz[95] found that the rate of dehydrogenation decreased with concentration. The optimum temperature was about 250° and the optimum amount of nickel about 5 per

cent. When tetrahydroinol and tetrahydromethylionol were dehydrogenated under these conditions, the corresponding ketones were formed, in yields[96] of about 80 per cent.

USE OF FORMIC ACID

In 1937 a patent was issued to du Pont[97] describing the preparation of the ionones from the pseudoionones by the use of aqueous 55-80 per cent formic acid. It was maintained that the use of such concentrations of formic acid had the advantage that the isomerized product separated directly from the reaction mass without further dilution. The acid layer was saved and could be directly employed in subsequent batches. For example 800 parts of commercial concentrated formic acid (90 per cent) were diluted with 200 parts of water, and heated to a temperature of 95-100° in a vessel provided with a reflux condenser and means for agitation. Then 150 parts of pseudomethylionone were introduced. The temperature of this solution was raised to reflux or about 106° and maintained at this point for about 30 minutes, or until the reaction product, which separated as a brown oil, did not perceptibly increase. The mixture was cooled to room temperature and allowed to separate. After withdrawing the acid, the oil was washed repeatedly with water and a small amount of soda ash, until free from formic acid. There were obtained



(1,1-dimethyl-6-ethyl tetralin (LXXXIV)

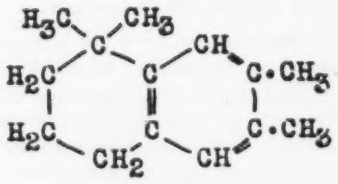
135 parts of crude methylionone, which might be further purified by vacuum distillation. The product consisted essentially of alpha-methylionone just as when more concentrated formic acid was used.

At the same time, du Pont[98] patented a process for separating the a and b constituents of the alpha-methylionone. This was accomplished by varying the concentration of formic acid whose aqueous solutions exerted a selective solvent action for the isomers of alpha-methylionone. For example 100 parts of a mixture of alpha-methylionone a and b, containing about 70 parts of the b-isomer were shaken in 400 parts of an 86 per cent aqueous formic acid solution at about 50°. The mass was then allowed to settle at the same temperature and 70 parts of oil separated consisting substantially of pure alpha-methylionone b. If the aqueous layer was diluted with water to about 50 per cent formic acid an additional 25 parts of oil separated consisting mainly of alpha-methylionone a.

Previous dehydrogenation procedures for hydroaromatic compounds utilized sulphur and selenium almost exclusively. In 1937 Ritter and Sharpe[99] reported the successful dehydrogenation of tetralin and ionene with isoamyl disulphide, a method which seems to be the first to use combined sulphur as a dehydrogenating agent. The action of both sulphur and isoamyl disulphide on tetralin yielded about 70 per cent of naphthalene. In the case of ionene, however, the alkyl sulphide produced 1,6-dimethylnaphthalene in a 32 per cent yield, while sulphur gave only 10-12 per cent yields. Of the neutral gases evolved, 85 per cent was found to be methane, probably arising from the removal of a methyl group. A reexamination of selenium dehydrogenation resulted in the liberation of the same amount of methane whereas it had previously been supposed[100] that the methyl group was eliminated as methyl mercaptan.

Part of the mystery of the violet flower oil was dispelled when Ruzicka[101] reported the isolation of a ketone which he called parmone, by the use of Girard's reagent. Analysis of the ketone led to the empirical formula $C_{13}H_{20}O$, a formula which was isomeric with the ionones and not as we have learned, with irone. Parmone was stated to be more violet-like in odor than the ionones. It was not found in violet leaf oil and largely accounts for the difference in the leaf and flower oils. Working with 0.25 g. of parmone, Ruzicka found the constants: b.p. 110-120°/12 mm., phenylsemicarbazone m.p. 166-168°, p-bromphenylhydrazone m.p. 132-133°. Thus far there have been no publications either on the structure of this ketone or on its synthesis.

In 1937 Pope and Bogert[102] synthesized 1,1-dimethyl-6-ethyl- (LXXXIV) and 1,1,6,7-tetramethyl tetralin (LXXXV), and carefully identified them by their physical constants.



(1,1,6,7-tetramethyl tetralin) (LXXXV)

These tetralins it will be observed result from the action of iodine on the methylionones, the first methylionene being derived from methylionone a and the second from methylionone b. Five commercial samples of methylionone were examined and in every case, after dehydration by distillation with iodine, the only methylionene isolated was the tetralin (LXXXIV). Therefore during manufacture of these methylionones the citral must have condensed wholly or chiefly with the $-CO.CH_3$ group of the methyl ethyl ketone.

In 1938 Bogert and Apfelbaum[103] synthesized 1,1,2,6-tetramethyl tetralin, a structure which we have seen had been proposed by Ruzicka et al. as one of the possibilities for irene. The oxidation products of this tetralin according to the authors were the same as those reported for irene obtained from the irone of orris root. However, no mention was made of the formation of 3,3,4-trimethyl pimelic acid, a product which Ruzicka found and could only explain as resulting from a seven-membered ring.